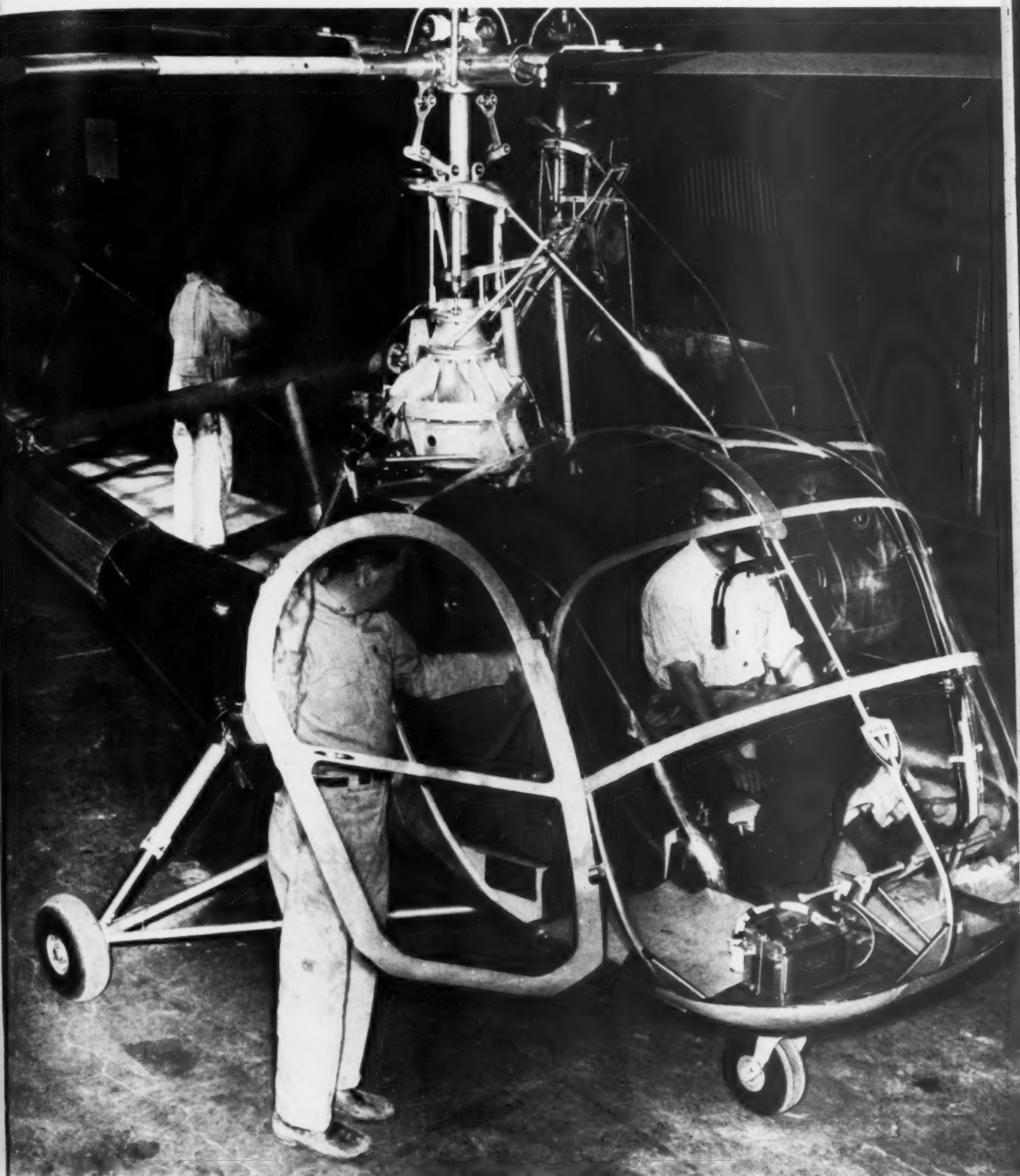


WESTERN INDUSTRY



• Helicopter assembly lines may be on their way. Here is the start of one in the West. For details see page 5.

MARCH
1950 VOLUME XV
NUMBER 3

✓ Survey by Western Industry shows how 211 plants organize their work. p. 33

✓ Life made easier for private pilots by electronic navigation aids. p. 41

✓ Mechanized movie lots would help to bring down the cost of pictures. p. 44

✓ Who in your company decides when and how much advertising. p. 46

SAVES WEIGHT! ...SAVES TIME!

CABCO ALL-BOUND CONTAINERS SAVE 25 POUNDS, CUT PACKING TIME 75% ON ELECTRIC MOTOR SHIPMENTS

A 25-pound reduction of actual tare weight! And a 75% saving on packing time! That's how Cabco all-bound wooden containers are helping General Electric Company save on shipments of 3-hp electric motors from its San Jose, Calif. plant. Cabco all-bounds cut packing

time from 4 minutes to 1 minute per motor. Shipping weight is reduced 13% over nailed crates formerly used. And Cabco all-bounds (received flat, ready to use) also simplify and speed container handling within the plant on the loading dock and at the destination.

IN MANY INDUSTRIES...

...from the equipment manufacturer to the fruit and produce grower, shippers are benefiting from the multiple advantages of Cabco all-bounds. These modern, engineered containers give excellent product protec-

tion, often weigh less, require little storage space, are easy to handle, and fold together in seconds without hammer or nails. Cabco all-bounds are made by the West's oldest, foremost manufacturer of wooden containers.

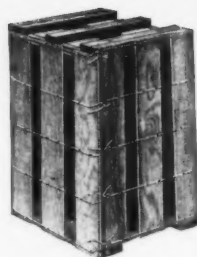
Find out how Cabco all-bounds can help you! Investigate Cabco's container design service. Write direct to exclusive sales agents:

DUFF CALIFORNIA CO.

Sawn Shook, Barrels, Veneer Covers and All-Bound Containers
100 Bush Street, San Francisco 4, California • Telephone SUtter 1-2260
2581 E. Eighth Street, Los Angeles 23, Calif • Telephone ANgelus 1-4161



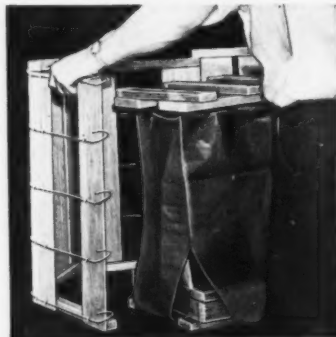
Nailed crate formerly used.
Weight loaded 175 lbs.
Packing time, 4 minutes.



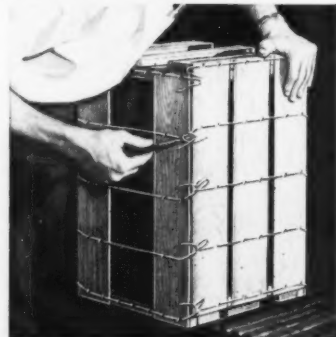
Cabco all-bound container
Weight loaded 150 lbs.
Packing time, 1 minute.



START! 3 hp G.E. motor rolls along assembly line to packing point.



30 SECONDS LATER! Paper cover on, top in place, Cabco all-bound wraps around motor.



1 MINUTE LATER! Container securely closed, motor ready to ship!

CALIFORNIA BARREL COMPANY, LTD.

OFFICES: SAN FRANCISCO, LOS ANGELES and ARCATA, CALIFORNIA
SALT LAKE CITY, UTAH • PLANTS: ARCATA, SAN FRANCISCO, LOS ANGELES

CABCO
CONTAINERS
THIS IS OUR 66TH YEAR

7 Reasons-

THEY'RE ADAPTABLE!

Pillow blocks available with fixed or floating bearing. (Fixed bearing shown)

THEY CARRY THEIR FULL LOAD!

Self-aligning double row of concave rollers between convex raceways provide full contact, full load capacity, even with shaft deflection or misalignment.

CLEAN OPERATION

Effective seal keeps grease or oil in, dirt out!

FEWER GREASINGS!

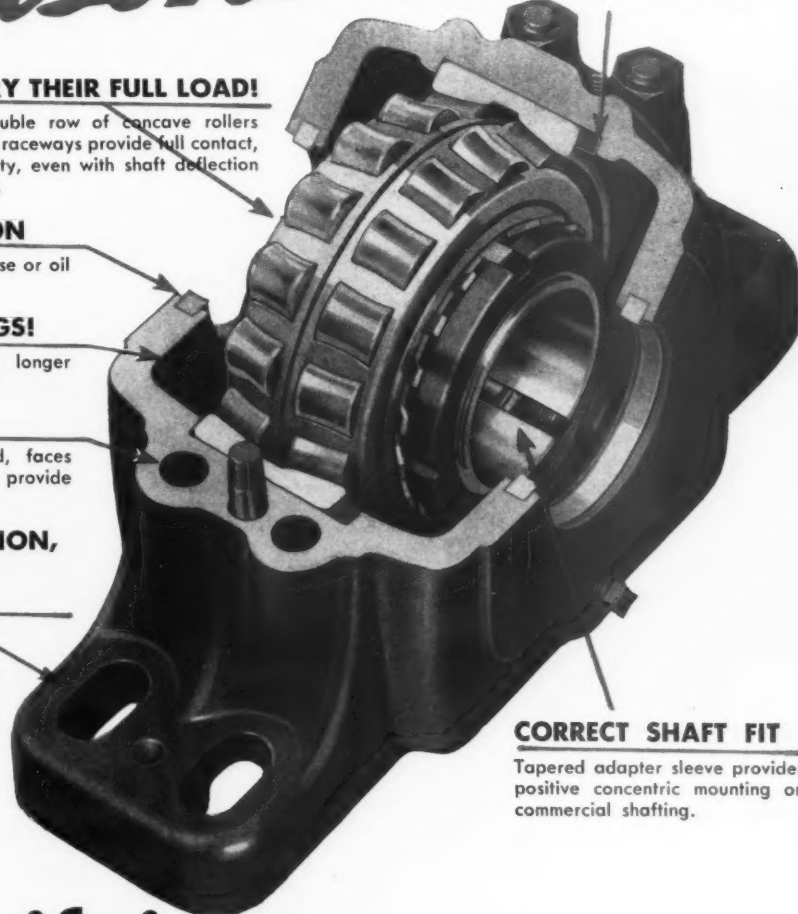
Large reservoir allows longer greasing intervals.

PRECISION FIT

Base and cap doweled, faces accurately ground, to provide leak-proof joint.

EASY INSTALLATION, INSPECTION, DISASSEMBLY

Rugged, two-piece cast housing is simple, with slotted bolt holes for easy mounting.



CORRECT SHAFT FIT

Tapered adapter sleeve provides positive concentric mounting on commercial shafting.

for Specifying

Better and longer service are your prime considerations in choosing such vital equipment as ball and roller bearings. Every feature of Link-Belt bearings is calculated to contribute to their efficiency and endurance. The engineering knowledge of the Link-Belt organization and the unexcelled facilities of a plant devoted entirely to manufacturing precision ball and roller bearings are your assurance of maximum service.

Illustrated above is Series 6800 Roller Bearing Pillow Block, tapered adapter sleeve type; also made in Series 7800 and 7900 press fit type for precision shafting. Other standard models are available in ball and roller bearing types, for various shaft sizes, solid or split housings, open or closed ends, in pillow blocks, cartridge, flanged cartridge, flanged, hanger and takeup blocks. Available from stock at factory branch stores and distributors located throughout the nation and many representatives in other countries of the world.

Complete data in Catalog 2550. Send for your copy.

LINK-BELT

Self-Aligning

BALL and ROLLER BEARINGS



LINK-BELT COMPANY

PACIFIC DIVISION

Plants and Factory Branch Stores at San Francisco 24,
Los Angeles 33, Seattle 4,
Offices and Factory Branch Stores at Portland 9, Spokane 13,
Oakland 7.

11732P

YOUR BIGGEST BODY BUY TODAY IS AN ALL STEEL *"Unit-Built"* FRUEHAUF!

And Proof of This:

are buys like the handsome 12-ft. wheelhousing model shown here. Equipped with full double rear doors, it can be yours complete — painted and mounted on your chassis — all for only

\$685⁷⁵

(freight & taxes extra)



EVERY DAY, more and more fleet owners are finding in Fruehauf Van Bodies the *big money-saving* answer to their hauling equipment needs.

"Unit-Built" like Fruehauf's famous Aerovan Trailers, these handsome all-steel Truck Bodies are unmatched for *rugged strength . . . long life . . . low upkeep*. That's because their sturdy frames are welded throughout into solid, rigid, one-piece units.

Shown here, on the right, are but a few of many ways these Bodies can be specially tailored to your particular job. No other production body builder offers you such a selection of standard body options — over 500 different combinations.

And once you've chosen the right Fruehauf Body for your chassis, it takes your nearby Branch only a matter of hours to paint it, mount it and have your new truck ready to roll.

Fruehauf Van Bodies are available in 12-ft., 14-ft. and 16-ft. lengths — in straight-frame or wheelhousing models.

Ask your Branch about these Bodies today.

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant, Los Angeles

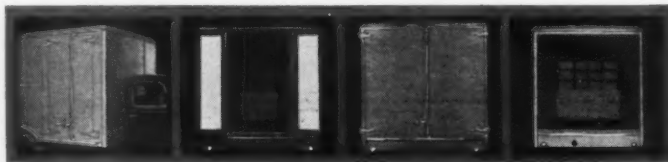
Sales and Service: Los Angeles • San Francisco • Portland
Seattle • San Diego • Fresno • Sacramento • Spokane
Billings • Salt Lake City • Boise • Phoenix • Albuquerque
El Paso • Denver

FRUEHAUF *Truck Bodies*

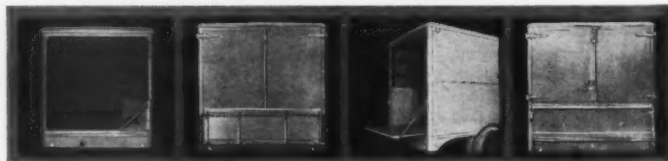
Only Fruehauf *"Unit-Built"* Bodies Offer All These Options . . .



1. Open Top 2. Solid Rear End 3. Solid Sides 4. Single Side Door



5. Double Side Door 6. Narrow Double Rear Doors 7. Full-Width Double Rear Doors 8. No Rear Door



9. Express Gate Rear 10. Tailgate (Outside Type) 11. Tailgate (Flush Type) 12. Tailgate (Doors Above)

Custom Quality at Production-Line Prices!

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This Month in WESTERN INDUSTRY

VOLUME XV

MARCH • 1950

NUMBER 3

Editorial Page	15
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Corn versus Facts

Articles

How 211 Plants in the West Organize Their Operations	33
A New Electronic Navigation Aid to Control All Aerial Routes	41
Materials Handling:	
Moving Things in the Movie Lots Is a Man Sized Operation	44
Hydraulic Power Packs a Punch to KO Production Problems	48
Who Decides Your Advertising Plans and Budget?	46
Technical Shorts	51
Labor and the Industrial West:	
Wage Changes	52
Wage Change Table	54

Regional Reviews

Tehachapi to Tijuana	56
Sierras to the Sea	60
Olympics to the Couer d'Alenes	62
Columbia Empire	70
The Continental Divide	74
The Wasatch Front	72

Departments

Westerners at Work	84
The West on Its Way	77
Trade Winds	86
New Equipment	66
Helpful Literature	68
Book Reviews	69

Advertiser's Index	90
------------------------------	----

Front Cover

Helicopters aren't exactly as common at automobiles yet, but they are on their way. They are old stuff with the Los Angeles postoffice, and now San Francisco has a downtown helicopter port for reaching airports. Cover scene shows operations on the assembly floor at United Helicopters, Inc., Palo Alto.

THE SINEWS OF CALIFORNIA INDUSTRY

LOW-COST ELECTRIC POWER



GROWTH OF NEW POWER FOR INDUSTRY—New power supplies for industry show bulging muscles . . . ready for work. Fresh from the hands of construction crews into actual installations are 853,600 new horsepower added to P. G. and E.'s electric system since 1945. Three additional power giants now being built will up this new total to 1,826,600 horsepower by mid-1951 . . . *double* P. G. and E.'s generating capacity before wartime restrictions stopped normal building.

LOW-COST POWER AIDS INDUSTRIAL PROGRESS—Low-cost electric power to drive the machinery for industrial processes has been a long-recognized stimulant to the growth of Northern and Central California's thriving districts. Since World War II more than 30,000 new industrial and commercial customers have settled in P. G. and E. service territory . . . and thousands of other established industries have increased their service demands by expanded operations.

NEW POWER UNITS ASSURE ADEQUATE SERVICE—The new power producers already installed . . . and the new plants being built . . . offer continued assurance of adequate power for industry in P. G. and E. service territory at rates among the nation's lowest.

NEW POWER ADDED TO OUR SYSTEM

BY MARCH, 1950

853,600

HORSEPOWER



BY DECEMBER, 1950

1,424,600

HORSEPOWER



BY JULY, 1951

1,826,600

HORSEPOWER



P.G. and E.

PACIFIC GAS AND ELECTRIC COMPANY

WI 103-350

For completeness of selection You can't beat the CRANE line

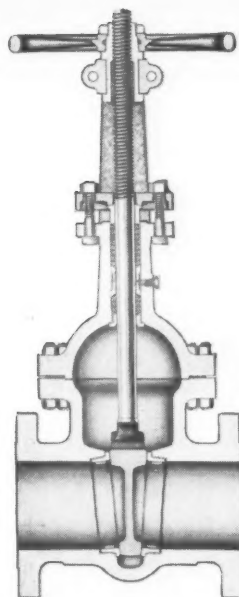
STEEL VALVES FOR SEVERE STEAM SERVICES

Crane Cast Steel Wedge Gate Valves find wide application wherever exceptionally rugged and durable steel valves are required. Body and bonnet have heavy metal sections and ample reinforcements at points under greatest stress. Straight-through ports assure minimum turbulence, erosion, and resistance to flow.

Solid wedge disc with close fitting disc guides maintains accurate seating on shoulder-type screwed-in body seat rings. "T-head" disc-stem connection prevents side strain on stem. Available in pressure classes from 150 to 1500 pounds with a variety of trim materials especially suited for recommended services. Screwed, flanged, or welding ends. See your new No. 49 Crane Catalog, p. 227.

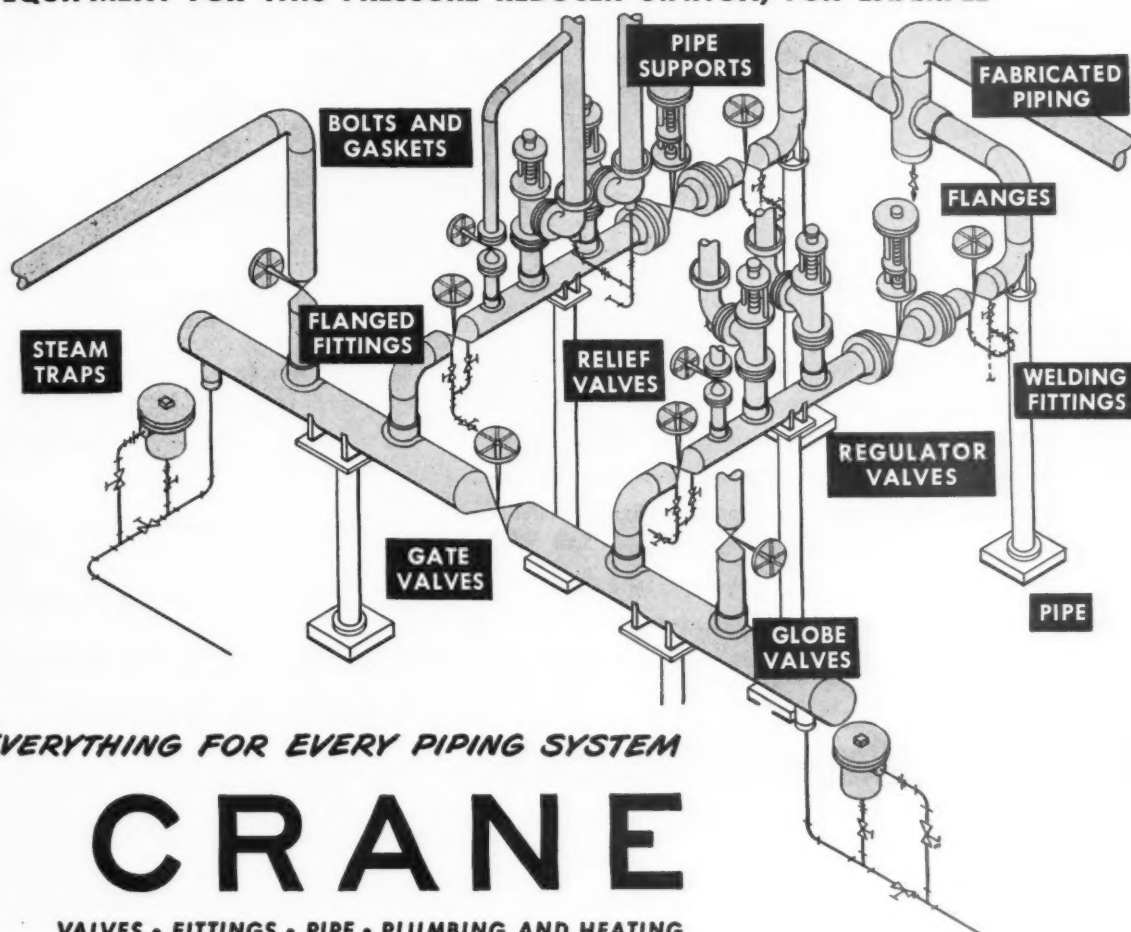
CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.

Branches and Wholesalers Serving ALL Industrial Areas



No. 33XR, 300-Pound Steel Gate for steam up to 850° F.; for water, oil, air or gas up to 500° F. Exelloy to Nickel Alloy seating. Sizes: 1 1/2 to 24 in.

**ONE ORDER TO CRANE COVERS ALL PIPING
EQUIPMENT FOR THIS PRESSURE REDUCER STATION, FOR EXAMPLE**



EVERYTHING FOR EVERY PIPING SYSTEM

CRANE

VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

IF YOU WANT THE RIGHT PLAN, CALL IN THE RIGHT MAN!



Today, most employers recognize the importance of an adequate group insurance program for their employees. They realize, too, that in order to secure the greatest return in employee-security and satisfaction, the plan must be the *right plan* for the organization concerned. Your insurance agent or broker can offer you a real service in helping to key your group insurance plan to the needs of *your organization*. His help is as close as your telephone. Call him *today*!

This message published by one of the recognized companies underwriting modern group insurance plans —
CALIFORNIA-WESTERN STATES LIFE INSURANCE COMPANY

**GET *Better* ACQUAINTED
WITH YOUR INSURANCE
AGENT OR BROKER!**

**He Can Be a Valuable
"Key-Man" In Your Business**



Since December, 1943, Kaiser Steel has operated the only blast furnace on the Pacific Coast—with a capacity of 438,000 tons of pig iron a year.

Recently, Kaiser Steel completed and “blew in” a second giant blast furnace at Fontana...doubling

the potential pig iron capacity of the Pacific Coast ... again boosting its production of steel.

This means that the West's only integrated *independent* steel plant will bring even more industry, more jobs, more wealth to the West!

It's good business to do business with

 **Kaiser Steel**

built to serve the West

PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • hot rolled strip • hot rolled sheet alloy bars • carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels • pig iron coke oven by-products • For details and specifications, write: **KAISER STEEL CORP., LOS ANGELES, OAKLAND, SEATTLE, HOUSTON, NEW YORK**



You Get **RELIABLE LOW-COST**
PERFORMANCE and **UNUSUALLY**
LONG SERVICE LIFE from

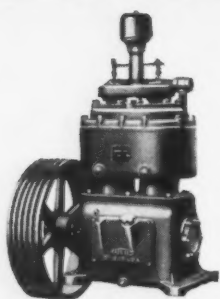
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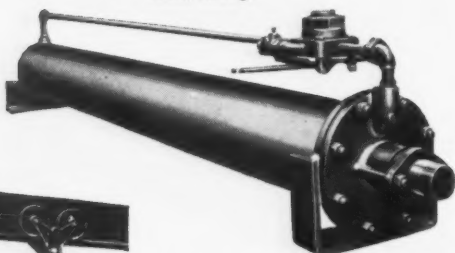
Hoists

Cylinders

Compressors



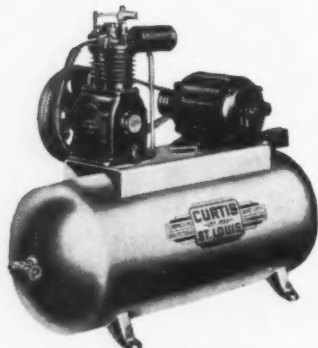
Model C Water-Cooled Compressors,
up to 50 H.P. Fully Enclosed — Dust
and Dirt Proof — Carbon-free Valves.
Timken Bearings.



Curtis Air Cylinders For Almost Any
Pushing, Pulling or Hoisting Operation.



Curtis Air Hoists Provide
Accurate, Low-Cost Lifting
of Material or Machines.



Curtis Model F Air Compressors are
available as either electric or gasoline
motor-driven units (electric motor-driven
portable or stationary). Up to 10 H.P.

Industrial plants throughout the country are using Curtis Compressors, Hoists, and Cylinders to reduce production cost through manhours saved.

Curtis equipment is precision built by a company with 96 Years of Successful Manufacturing Experience—Your assurance of proper performance from the moment Curtis equipment is installed.

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Calif. • 2850 Broadway, Oakland 11, Calif.

O. J. THOMAS, 1018 S. E. 8th Ave., Portland 14, Oregon

CURTIS PNEUMATIC MACHINERY DIVISION

I 50-1

of Curtis Manufacturing Company
1954 Kienlen Avenue, St. Louis 20, Mo.

I am interested in items checked below:

☐

Air Hoists

Name.....

☐

Air Cylinders

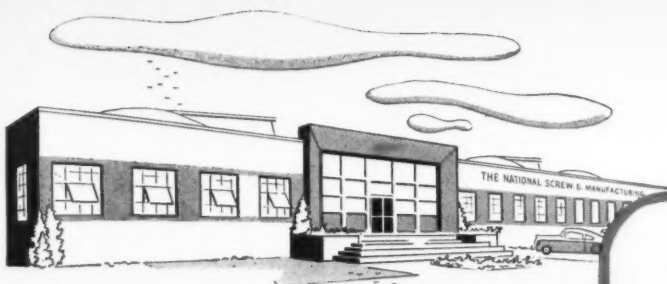
Firm.....

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Air Compressors

Street.....

City.....Zone.....State.....



NOW TURNING OUT

*Millions of
Western-Made
Fasteners...*



...for West Coast Industries

Our new, modern Los Angeles plant has been established for just one purpose . . . to give West Coast manufacturers better and faster service on their fastener needs.

A complete line of "National" standard fasteners is now available to Western industry through this well-equipped plant.

You can also take advantage of the entire facilities of "National" to obtain special types of fasteners to fit any need. The "National" line is the most complete made by any manufacturer.



We invite you to visit our new plant . . . and to call in a "National" representative on any of your fastener problems.

NATIONAL SCREW & MFG. CO. OF CAL.

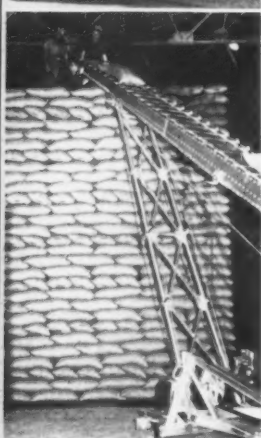
3423 So. Garfield Ave., Los Angeles 22, Cal.

Div. of: The National Screw & Mfg. Co., Cleveland 4, Ohio *



WESTERN INDUSTRY

MATERIALS and FREIGHT HANDLING Theme of Our May, 1950 issue



The phenomenal growth of industry in the West is well known—but have you thought how much more important is the handling of materials to a rapidly growing industry, than to more static establishments? In 14 of the Nation's 16 major industries, the growth of industry in the West exceeded the national average (by 20% to 66% in 8 of the 14), according to U. S. Dept. of Commerce. That's why it will pay you to tell your story in our May MATERIALS and FREIGHT HANDLING issue.

ARTICLES WILL HELP BOTH READERS AND ADVERTISERS

Like all WESTERN INDUSTRY issues, the editorial material in this May Number will provide brass-tack "why" and "how" information aimed to help your prospects solve their materials and freight handling problems. In our 1949 MATERIALS HANDLING issue we carried 13 articles on this subject. To give you some idea of the phases included, here are 5 of the 13 titles:

1. "High Speed Towing by the Sub-floor Method"
2. "Standards for Judging Whether Palletizing Will Pay Out"
3. "System Cuts Package Handling Costs from 8.4¢ to 1.8¢"
4. "Take an Overall View of Your Materials Handling Problem"
5. "Tramrail Effects Savings in Repair and Service Shop"

1950 will be a repeat performance so far as thorough coverage is concerned, and you know that such articles, well prepared, naturally earn high readership and provide an interested, ready-made audience for your advertising.

WHAT OUR READERS SAY...

"You ran an article on our New Dual Newsprint Handling Device. The effect of this article was outstanding. Inquiries from Italy, England, Canada, and numerous eastern cities have been received. Furthermore, each day brings more correspondence from cities throughout the country and Canada."

"The article in your magazine regarding 'Disposable Paper Pallets Save Time, Money and Goods' has come to my attention. I wish . . . to obtain five reprints . . ."

"We would greatly appreciate receiving, if possible, 3 copies of the May issue of *Western Industry* . . . containing a story entitled 'Will Long Distance Conveyors Supersede Rail Hauling?'"

"Thank you very much for sending me the tear sheets of the article you printed in your May issue on Sherwood Swan's conveyor system. This particular installation has been of great interest to us, and we appreciate learning more about it through your editorial presentation."

"The May 1949, issue of *Western Industry* contains an interesting article on palletized operations at the Oakland Naval Supply Center. I should like to inquire whether *Western Industry* would have any objection to our photographing the chart on page 51 for distribution to some of our local unions."

The materials-handling articles in the May, 1950 issue will be even better, we think, than those that evoked these comments.

Join the 53 alert manufacturers who already have reserved space. Back up your branch offices, distributors and salesmen, with dominant space in this big, interest-packed Materials and Freight Handling number. Don't miss this opportunity to cash in on the most active materials handling market in the country. Mail the coupon *today* and be sure of the best available position. Be sure to mention size of space and colors.



CARRY YOUR SALES GOSPEL TO OVER 9,000* ACTIVE BUYING FACTORS

WESTERN INDUSTRY's effective circulation, as of January, 1950, passed the 9,000* mark. By effective circulation, we mean 9,000 copies mailed to those who actively manage and do the buying, specifying and approving of purchases in Western plants. To reach these 9,000 buyers reserve space for your sales message in our May MATERIALS and FREIGHT HANDLING number TODAY. First forms close April 5th; final forms with complete plates, April 12th.

*There's no padding in this 9,000. It does not contain copies to advertisers, agencies, exchanges, samples, or advertising prospects.

NO INCREASE IN RATES

You pay no premium for this special, extra-interest-packed May issue. Our regular rates apply . . .

Out April 25—Final Forms Close April 12

Take advantage of the May MATERIALS and FREIGHT HANDLING number NOW. Wire or mail your space reservation TODAY, stating ad size and whether color or bleed. Final forms close April 12. If further extension is necessary, wire or air mail us before that date.

ADVERTISING RATES

(Based On Total Bulk Space Used in 12 Months)

Full Page Space			
24 pages or more			\$185.00 per page
12 to 23 pages			200.00 per page
6 to 11 pages			225.00 per page
3 to 5 pages			240.00 per page
Less than 3 pages			255.00 per page
Fractional Space			
	1 time	6 time	12 time
2/3 page	\$170.00	\$160.00	\$150.00
1/2 page	127.50	120.00	112.50
1/3 page	85.00	85.00	80.00
1/4 page	63.75	63.75	60.00
1/6 page	42.50	42.50	42.50
1/8 page	31.88	31.88	31.88
Color Charges			
	1 page	2 pages facing	
Red, orange or yellow	\$55.00	\$80.00	
Other colors	65.00	70.00	
Metallic colors	70.00	95.00	
Bleed Borders			
Bleed top, bottom or outside	20% extra	15% extra	
Gutter bleed	No charge	No charge	
Inserts			
Inserts billed at earned black and white page rate. No extra charge for backup either single leaf or spread (4-page form).			
Composition—No charge.			
Preferred Positions (Non-cancellable).			
Page facing second cover		10% premium	
Page facing contents page		20% premium	
Page facing first editorial		20% premium	
Page facing first reading		20% premium	
Any guaranteed regular position (other than preferred)		10% premium	
NOTE: Island 1/2-page positions (4 1/4" x 7 1/2") cost 20% extra.			
Write for availability of cover positions and rates.			

MECHANICAL REQUIREMENTS

Space May Be Used in Any of the Following Forms:

Bleed full page (trim size)	8 1/4 in. wide x 11 1/4 in. deep
Requires a plate size of	8 3/4 in. wide x 11 1/2 in. deep
Standard full page	7 in. wide x 10 in. deep
Two-thirds page	4 1/2 in. wide x 10 in. deep
Half page	3 1/2 in. wide x 4 1/2 in. deep
or	3 1/2 in. wide x 7 1/2 in. deep
Third page	2 1/4 in. wide x 10 in. deep
or	4 1/4 in. wide x 5 in. deep
Quarter page	7 in. wide x 2 1/4 in. deep
or	3 1/4 in. wide x 4 1/4 in. deep
or	4 1/4 in. wide x 3 1/4 in. deep
Sixth page	2 1/4 in. wide x 4 1/4 in. deep
Eighth page	7 in. wide x 1 1/4 in. deep
or	3 1/4 in. wide x 2 1/4 in. deep

Inserts

Should be shipped untrimmed measuring 8 3/4" by 12" to trim to magazine size 8 1/4" by 11 1/4", allowing 3/8" for gutter bleed. If backup required, ship to us c/o Ben Franklin Press, Inc., 500 Sansome Street, San Francisco 11. If no backup required, ship to c/o William S. Millerick Co., 545 Sansome Street, San Francisco 11. Stock preferably not heavier than our cover stock.

Half-tone Screens

110- or 120-line preferred.

Closing Dates

First forms close on 5th of month preceding issue date, final forms on the 12th preceding issue date.

Plates

Plates should be shipped mounted, and with proper mortise. All plates not called for in 14 months will be destroyed.

Classified Advertising \$8.50 per column inch.

WESTERN INDUSTRY

609 MISSION ST.
SAN FRANCISCO 5
CALIFORNIA
YUkon 2-4343

New Market & Media
Data Units Available.
Send for a copy NOW.

NEW YORK—Franklin B. Lyons, Mgr.
Weston Road, Georgetown, Conn.
Telephone Georgetown 374

CLEVELAND—Richard C. Burns, Mgr.
7708 Deerfield Drive, Cleveland 29, Ohio
Telephone Tuxedo 5-1848

CHICAGO—A. C. Petersen, Mgr.
3423 Prairie Ave., Brookfield, Ill.
Telephone Brookfield 532

SAN FRANCISCO—R. C. Williams, Mgr.
609 Mission St., San Francisco 5, Calif.
Telephone YUkon 2-4343

LOS ANGELES—Clarence G. Beardslee, Mgr.
3757 Wilshire Blvd., Los Angeles 5, Calif.
Telephone DUnkirk 4-9462

CASH IN ON THIS MARKET NOW!

Western Industry: Yes, I want

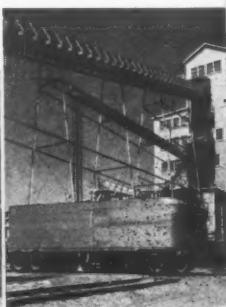
- ☐ 1949 Materials Handling Issue
- ☐ 1950 Annual Review and Forecast
- ☐ Additional information and your District Manager to arrange an appointment with me.

NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____



WE DID IT All

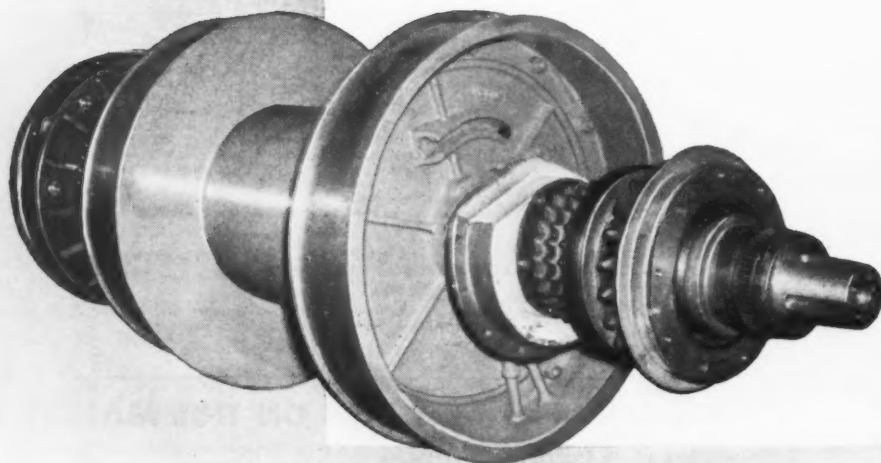
FROM ELECTRIC FURNACE TO FINISHED PRODUCT

Here's a job that could have been an expensive headache. But it wasn't. The manufacturer just said, "Let National do it all". And we did . . . every bit of it.

The tough alloy steel was melted in our own electric furnaces . . . the castings were made in our foundry. We made the forgings . . . did the machining . . . grinding and heat-treating. And then delivered the job completely assembled.

All the trouble and expense of dealing with several sources were avoided . . . because every operation was done in one integrated plant . . . right here in the West.

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THE **NATIONAL**
SUPPLY COMPANY

THE NATIONAL SUPPLY COMPANY
Industrial Products Division
Torrance, California • Los Angeles Area
IDEAL PRESSED STEEL FORGINGS,
BILLETS AND LARGE BARS

MELTING • FORGING • CASTING • MACHINING
HEAT TREATING • ASSEMBLING • WELDING • TESTING

IN OUR MAILBOX

United We Stand

Editor, Western Industry:

Your Annual Review and Forecast Number of *Western Industry* is a very impressive publication. I was interested in your thoughts about the importance of developing a sense of unity among industries in the West. Your magazine has consistently been one of the constructive forces working toward that economic unity and I am encouraged by the increasing signs of such unity in western business thinking.

My best wishes for the continuing success of your efforts.

L. M. GIANNINI, President,
Bank of America
San Francisco, Calif.

* * *

50 Boosters

Editor, Western Industry:

I have read the article on the industrial expansion program of Colorado commerce carried in the January issue of your magazine. Apparently a number of other persons in this state also have read the article and have requested copies of it. I wonder if it would be possible to secure fifty reprints of the piece.

ROLLE RAND, Executive Director,
Colorado Resources Development
Council, Inc.
Denver, Colorado.

* * *

Reference Source

Editor, Western Industry:

A word of congratulation on the wonderful job done on the January number of *Western Industry*. I have filed my copy as a valuable reference source for certain statistics.

W. IRVIN BRENNAN,
Public Relations Counselor
Los Angeles, California.

* * *

No Questions at All

Editor, Western Industry:

I have examined with great interest the annual Review and Forecast Number of *Western Industry*. There can be no question but the information and data which are presented in this number of your publication give striking evidence of the tremendous growth which is taking place in the West.

While I can think of several reasons for not showing statistics which would compare the growth in the West with that in the country as a whole, nevertheless I did miss that comparison in connection with the data shown for many commodities. Other than this I have no particular comments to make other than to congratulate you wholeheartedly on this annual Review and Forecast.

I. W. WILSON, Senior Vice President,
Aluminum Company of America,
Pittsburgh, Pa.

Continued on page 17

EDITORIAL COMMENT

Corn vs. Facts

"PURE CORN" is about the only sensible way to describe most of the excited appeals by management for "preserving us from collectivism" or "keeping the American way of life." When it comes to heading off a trend toward government ownership these cries are about as effective as the shrieks of a woman standing on a table pleading for help against a mouse crawling around the floor.

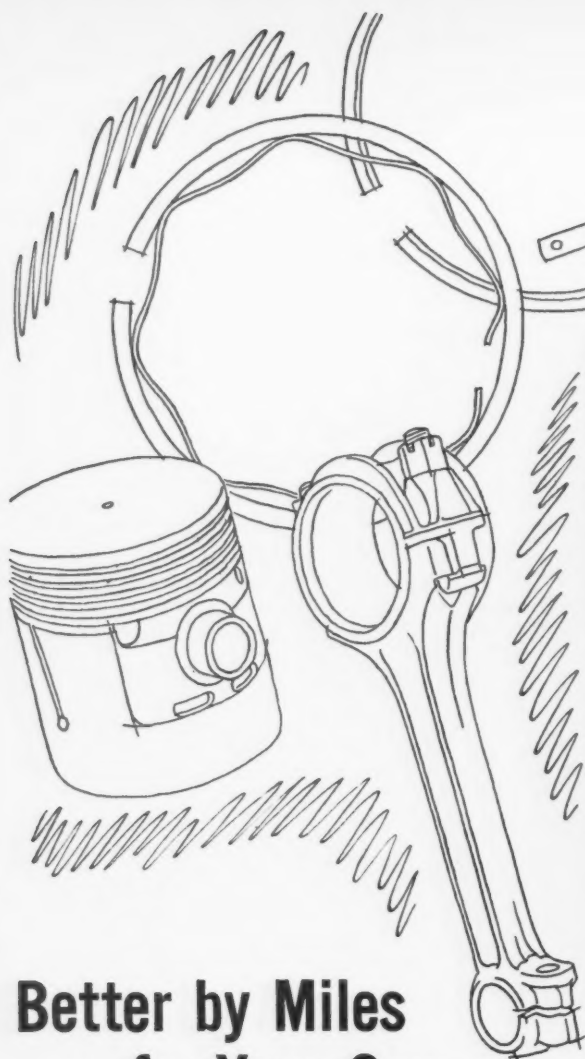
Voters go for public ownership schemes because: (1) they are not convinced that private enterprise is performing a public service free from unnecessary profit; (2) they fear (whether justly or unjustly) domination by large corporations; (3) they feel that public ownership and control is inherently dedicated to the best interests of all; (4) they do not sufficiently weigh the fact that "everybody's business is nobody's business." Private enterprise is due for many more beatings until it dispels these opinions and ceases to make emotional appeals which appeal to no one except those doing the emoting.

For an effective marshaling of a few simple facts in favor of private enterprise, we commend to our readers a recent article in the *Oregon Voter* pointing out that commissioners and managers of PUDs are finding the job of operating a power utility no sinecure. It says there has been an almost unbelievable turnover of managers, that in PUDs operating eight years or more in Washington and Oregon there cannot be more than two or three which have the managers they started with, and that one of them has had something like seven different managers and operating managers in about eight years of operation.

"It makes little difference whether the manager is new or old on the job, says the *Oregon Voter*. In the past year two experienced managers of large western Washington PUDs quit their jobs. We do not understand that either was fired, but it seems that unpleasant and impossible tasks were so piled on them they had to quit to retain their self-respect. . . .

"Two of the factors contributing to PUD managerial troubles are the inexperience of the commissioners, and secondly, the absence of commissioner salaries. In certain instances, Washington commissioners, in order to make a living, have appeared at the offices nearly every day in order to receive the \$10 per diem allowed them when performing district duties. This performance, of course, is a fraud and a farce. The commissioners particularly in mind had a manager capable of doing a good job since he quite well knew the business. Instead of having a free hand in all strictly managerial functions, he was bothered and hampered by the ill-informed meddling of the commissioners. The per-diem method of paying commissioners is a poor one and had better be revised.

"One very important note remains to be sounded on this theme. Practically every PUD of the Northwest has, through its history, been operating in a period of rapid population (and industrial) growth. One of these days, there will be a reverse and the managements will have to operate in hard times. Judging from the over-fast assumption of bonded debt and the extension of lines into thinly populated areas, there are PUDs which will land on the verge of insolvency, if not actually reaching that status, when the bad-times business cycle arrives."



Better by Miles for Your Car

Because it's longer lasting—doesn't break down even under tough winter driving conditions—Veedol means more miles of better driving. Low pour-point Veedol, 10W and 20W, flows freely at the lowest temperatures. That means you get faster cold weather starting and warm-up, smoother engine performance, complete lubrication,



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Veedol, famed as "The Aristocrat of Motor Oils," is made from 100% pure Pennsylvania base stocks. It is additive treated for extra premium quality. The Veedol film of protection means longer engine life. Veedol is available in SAE Grades 10 to 70.



**TIDE WATER
ASSOCIATED
OIL COMPANY**

MAIL BOX

Continued from page 15

Streamlined, Too

Editor, *Western Industry*:

Your Review and Forecast Number is an informative and well prepared publication.

F. G. GURLEY, President,
Atchison, Topeka and Santa
Fe Railway Company
Chicago, Ill.

* * *

That Covers It

Editor, *Western Industry*:

I think that your annual Review and Forecast Number is particularly well ordered and arranged and that its content is of tremendous interest and value to the eleven Western states which are pretty well covered. The very large number of industries which you find room to cover in some degree or other make the publication of unusual value and interest to anyone whose field of operations or review is our rapidly growing Pacific Coast area.

ALLARD A. CALKINS, President,
The Anglo California National
Bank of San Francisco
San Francisco, California.

* * *

Insurance Assurance

Editor, *Western Industry*:

You really weren't negligent in failing to call my attention to your annual Review and Forecast Number of *Western Industry*. On receiving my copy I read it with intense interest, and want to commend you on a splendid editorial and journalistic accomplishment.

Your publication is playing an important part in pointing up the potentialities and opportunities of the West. You are making a real contribution in the field of best development of these potentialities in the interest of all the West.

HARRY J. VOLK, Vice-President
The Prudential Insurance
Company of America,
Los Angeles, California.

* * *

Thanks To You, Too

Editor, *Western Industry*:

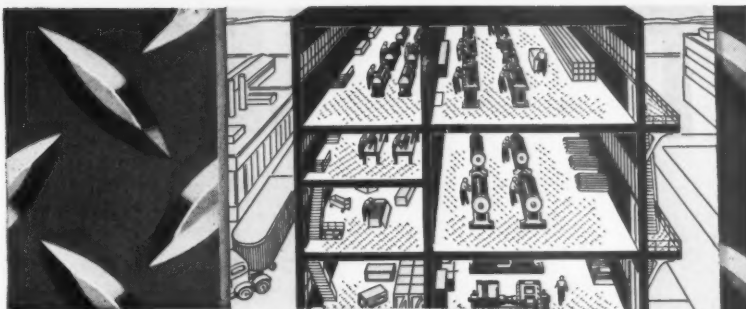
I thought that you might be interested in the reactions of our local and national sales forces to your fine article which analyzed in careful detail the Sherwood Swan operation in Oakland.

Directly from the article as published and from thousands of reprints, we established many fine prospective contacts and were aided in the closing of a considerable volume of business.

My compliments to you in that your article was so complete from a factual standpoint that it has become one of our standardized field report Case Histories used to illustrate the advantages of RAPISTAN FLOW in like operations.

Again, thank you, for not only our organization but many prospective users who have used this article as a guide to more efficient materials handling.

C. PLIN MEARS,
The Rapids-Standard Company,
Inc. of California.



From Cellar to Roof IT PAYS To Cover Every Foot with A.W. SUPER-DIAMOND FLOOR PLATE

FOOT SAFETY IN EVERY FOOT

Why risk having costly slipping accidents anywhere in your plant, when it's so easy to eliminate them by installing A.W. Super-Diamond Rolled Steel Floor Plate? Today hundreds of plants are using Super-Diamond Floor Plate... in boiler rooms—on shipping platforms—on floors and trucking aisles—on walkways and fire escapes. In fact, it is used wherever men walk or climb in plants and on products. Remember, too, it's easy to clean, requires no maintenance, and can be cut and installed overnight with minimum scrap.

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A Product of ALAN WOOD STEEL COMPANY

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Gentlemen:

Please send me a FREE copy of your 16-page Super-Diamond Catalog L-32.

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Company _____

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Other Products: PERMACLAD Stainless Clad Steel • A. W. ALGRIP ABRASIVE Floor Plate
Billets • Plates • Sheets • Strip • (Alloy and Special Grades).



IT'S MILES AHEAD!



HERE IS THE NEW KIND OF TRUCK that is a complete and logical answer to the modern problems of highway truck operators. It permits more payload within legal limits by providing for a more even distribution of the load on the axles. It gives improved roadability at highway speeds, better maneuverability in traffic, greater safety. Its functional styling will stay "modern" for years. In every way, it's *miles* ahead... the truck of the future in service today. See your White Representative for the facts about the new White 3000 for your business.

THE WHITE MOTOR COMPANY • Cleveland 1, Ohio, U. S. A.
THE WHITE MOTOR COMPANY OF CANADA LIMITED • Factory at Montreal



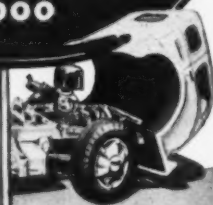
MORE EFFICIENT IN CITY TRAFFIC
Improved maneuverability due to shorter wheelbase and overall length, new driver time-saving advantages and additional carrying capacity.



GREATER HIGHWAY SAFETY
Helps the driver be a better driver. Roomy, comfortable cab... better all-directional vision... real ride and drive comfort and greater safety because of functional design.



CARRIES MORE PAYLOAD
Entirely new weight distribution for more goods delivered at lower cost... more payload in over-the-road service under restrictive highway weight limits.

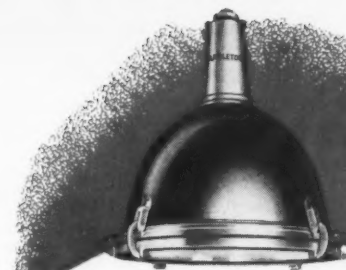


POWER-LIFT CAB is an exclusive White 3000 feature. The turn of a key lifts cab in less than 30 seconds for perfect front-end accessibility.

FOR 50 YEARS THE GREATEST NAME IN TRUCKS

CALENDAR OF MEETINGS

- March—Pacific N. W. Advisory Board, at Portland, Oregon. Contact F. T. Westmeyer, 624 Vance Building, Seattle, Washington.
- March 2-4—Society of the Plastics Industry Pacific Coast Annual Conference, Hotel del Coronado, San Diego, Calif.
- March 10-17—Timber Production Manufacturers' Association, at Spokane, Wash. Contact George Tichy, MA. 2259, Spokane.
- March 12-14—Northwest Cannery Association (corrected date), Multnomah Hotel, Portland, Oregon. Contact A. L. Hobart, 514 Board of Trade Bldg., Portland, AT 7569.
- March 13-15—Northwest Public Power Association at Hotel Davenport, Spokane. Contact R. B. Smith at RI. 7151, Spokane.
- March 16-19—Electrical Maintenance Engineers Assn. at Los Angeles.
- March 17-18—Western Highway Institute, at Hotel del Coronado, San Diego. R. H. Cutler, Salt Lake City, chairman.
- March 21-22—Northwest Wood Products Clinic, at Hotel Davenport, Spokane. Contact Bob McCann at MA. 1393, Spokane.
- March 28-31—Intermountain Logging Conference, at Hotel Davenport, Spokane. Contact Charles Keim, Kalispell, Montana.
- April 17-19—Pacific N.W. Bakers Association, Multnomah Hotel, Portland, Ore. Contact J. C. Crawford, Weatherly Bldg., Portland, CA. 6450.
- May—Western Traffic Conference, at Portland, Ore. Contact F. W. Ashton, 408 Oak Lane, San Gabriel, Calif.
- May 11-12—American Petroleum Institute, Production Division, at Los Angeles.
- May—N. A. M. Oregon Industrial Leadership Conference, at Portland. Contact Jack Shields, BR. 2637, N.A.M., Pacific Building.
- June 2-3—Pacific Coast Conference of Controllers Institute of America, at Ambassador Hotel, Los Angeles. General Chairman is Rudolph Ostengaard, Assistant Vice President, California Bank.
- June 12-15—National Association of Building Owners and Managers, at Olympic Hotel, Seattle, Washington. Contact Andrew Steers, president, Metropolitan Building Co., Seattle.
- June 25-29—Forest Products Research Society, at Multnomah Hotel, Portland. Contact Edward G. Locke, president, AT. 6171, U. S. Forest & Range Experiment Station, or C. W. Richey, BR. 6481, Housing Chairman.
- August—Western Packaging Exposition, San Francisco.
- Sept. 13-15—Pacific Electronic Exhibit (sixth annual), Long Beach Municipal Auditorium. IRE coast convention concurrently.
- Sept. 28-31—American Mining Congress—Metal Mining—at Salt Lake City, Utah.



GOOD LIGHT...

Your Most Profitable Production Tool!



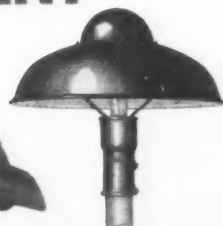
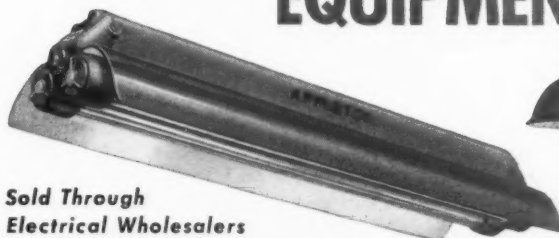
When you plan industrial lighting with Appleton Equipment the result is a finely coordinated system that paves the way for top worker efficiency, better production. That's because Appleton fixtures are scientifically designed to provide the *right light*, without uncomfortable glare, troublesome contrast or shadow.



Products of nearly half a century of experience, expert engineering and unequalled manufacturing facilities, Appleton Fixtures provide maximum illuminating efficiency at minimum installation, service and operating expense. Appleton Lighting Fixtures are available in the exact type and size for every industrial requirement—including hazardous locations—

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CONDUIT FITTINGS • LIGHTING EQUIPMENT • OUTLET AND
SWITCH BOXES • EXPLOSION-PROOF FITTINGS • REELITES

Steel Problems?



Call Jorgensen First

FACED WITH a problem involving the application of a drill steel? You will certainly want to use the *right* steel for the job. And you can get it from Jorgensen, because Jorgensen stocks many different types of steel used in making drills. For instance, Jorgensen carries a complete range of tool steels, from carbon polished drill rod to high speed steels—including

hollow drill steel used by the mining and construction industries, and solid drill steel used for gads in pneumatic tools. Furthermore, Jorgensen maintains huge stocks of various alloy steels used for drilling tools in the oil industry. To make a drill or any other steel article, you can obtain the *right* steel for the job from Jorgensen, so **CALL JORGENSEN FIRST!**



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LOS ANGELES
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HIgate 4-2030

SAN FRANCISCO
Ask Operator for
Enterprise 10942

HOUSTON
5311 Clinton Dr.
CHarter 1761

Both sour and sweet spots in the picture; Western oil market temporarily better; Copper production moves up; Lumber sellers have the upper hand; Canned goods a bit gloomy; Apparel orders big; Farm reports not so good.



BY coming out early in February with a forecast of what the prospects for its members were for the first of 1950, the California Manufacturers Association got some good chunks of newspaper and radio publicity. Unfortunately the figures were on a basis of percentage of individual firms, rather than on volume of business done, so they do not reveal as much information as could be desired. But here they are, for whatever they may be worth:

- 38 per cent of the state's manufacturers expect to do about the same volume of business in the first quarter this year as last;
- 32 per cent expect to do 5 to 55 per cent *more* business in the first quarter than in the like 1949 period;
- 26 per cent expect to do less this year than last;
- 4 per cent of those answering the poll were indecisive.

Executives answering the poll revealed that their good customers held remarkably similar views, and expressed themselves on first quarter business prospects in about the same proportion, percentage-wise, as California manufacturing executives.

Regarding employment, the poll was as follows:

- Roughly 60 per cent of the state's manufacturers will have as many workers on their payroll the first quarter this year as they had in the like 1949 period;
- 21 per cent will have fewer workers on their rolls than in the first quarter of 1949;

- About 17 per cent will increase their payroll, on the average, the first quarter this year as compared with 1949;
- 2 per cent of those replying to the poll gave indecisive answers.

Business Activity Indices

	October	November	December
¹ Arizona.....	318.0	317.8	316.2p
² California.....	224.5	220.5	223.0p
³ So. California.....	271.7	268.1	276.7p
⁴ Pacific Northwest.....	209.7p	—	—
⁴ Puget Sound.....	202.9	—	—
⁴ Inland Empire.....	192.1	—	—
⁴ Lower Columbia.....	226.8p	—	—

- Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, seasonally adjusted. 1940=100.
- Wells Fargo Bank & Union Trust Co. index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).
- Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.
- Index compiled by Bureau of Business Research, University of Washington. Basis of compilation not indicated.
- Preliminary estimate.

MANUFACTURING EMPLOYMENT

Estimated Number of Employees
Source: U. S. Bureau of Labor Statistics and State Agencies

	December 1948	December 1949
Washington	169,100	158,800
Oregon	121,100	122,500
California	727,100	*
TOTAL PACIFIC	1,017,300	*
Montana	18,300	17,600
Idaho	19,800	19,400
Wyoming	6,100	*
Colorado	56,100	*
New Mexico	8,900	*
Arizona	15,200	15,100
Utah	28,100	*
Nevada	3,300	3,000
TOTAL MOUNTAIN	155,700	*

* Not yet available.

INSURED UNEMPLOYMENT

(Under all programs: figures in thousands. From Social Security Board)

Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Orn.	Wash.	Total Pacific
Aug. 27.....	7.3	5.4	1.4	2.3	1.7	3.0	4.7	.6	26.4	223.0	18.8	32.2	274.0
Oct. 1.....	6.1	4.0	2.3	2.0	2.0	2.2	4.4	.5	23.5	192.9	17.8	31.6	242.3
Oct. 29.....	6.0	8.7	2.9	2.5	2.0	2.3	5.7	.8	30.9	200.5	23.7	41.2	265.4
Nov. 26.....	5.8	6.9	5.0	3.9	3.0	2.7	5.3	.9	33.5	239.1	34.1	54.6	329.8*
Dec. 31.....	6.5	7.5	9.5	8.2	3.1	3.8	8.9	2.1	49.6	257.3	42.7	74.6	374.6

* Revised.

Among the unfavorable factors is the situation in fruits and nuts, where the Federal-State Agricultural Marketing Service reports that prices dropped 30 per cent last year from 1948. Average price of all items delivered to canners alone fell 40 per cent. All marketings, either to processors or as fresh fruit, averaged about \$66 a ton in 1949, as against \$94 in 1948. Total gross income from fruits and nuts was \$346,000,000, compared with \$412,000,000 the year before. All

Continued on page 23

BANK DEPOSITS

(In millions of dollars—adjusted)

Average of daily figures. All member banks in the 12th Fed. Res. District. Demand deposits, excluding U. S. Government deposits, cash items in process of collection, and interbank deposits.

1949	Net Demand Deposits	Time Deposits
August	8,453	6,178
September	8,626	6,178
October	8,714	6,184
November	8,785	6,185
December	8,895	6,186

BANK LOANS

Industrial, commercial and agricultural
(In millions of dollars)

From weekly reporting member banks of Federal Reserve System in 7 Western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane and Salt Lake.
(Average of Wednesday reports)

1949		
July	2,416	
August	1,920	
September	1,956	
October	1,961	
November	1,999	
December	2,018	
January	2,003	

FREIGHT

Cars of revenue freight, railroad carriers
in 11 Western states

Compiled from Assn. of Am. R.R. weekly reports

	Carloadings	Received from Eastern Connections
	1948	1949
June	593,121	566,042
July	588,842	532,120
August	766,432	681,602
September	628,156	550,529
October	659,069	553,399
November	568,698	514,986
December	566,841	536,078

* 5-week period.

TRUCK TRAFFIC

(Number of commercial trucks entering state through border checking stations)

	CALIFORNIA	ARIZONA
	1948	1949
July	14,763	14,774
August	15,203	16,207
September	14,777	15,727
October	15,892	16,615
November	14,789	16,360
December	13,248	15,090

First in a series of
Unusual Grinding
Wheel Operations



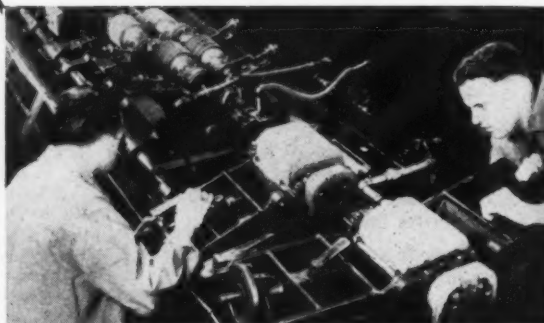
Giving the RAZOR BLADE a close shave!

● "Look Sharp—Feel Sharp—Be Sharp"

This world famous slogan has a definite relationship with the exacting requirements that the Gillette Safety Razor Co. place upon BAY STATE grinding wheels. Just imagine the precision limits that require a scientifically directed beam of light to measure the keenness of a cutting edge!

Whatever YOUR grinding problem may be, BAY STATE can solve it . . . fast. Possibly the exact specifications to meet your requirements can be supplied directly from large stocks either in Westboro, branch warehouses, or from our distributor stocks strategically located throughout the United States.

Send us your grinding problems. We can help you.



Photograph, Courtesy of Gillette Safety Razor Company.

BAY STATE ABRASIVE PRODUCTS CO. Westboro, Massachusetts, U.S.A.

Chicago, Cleveland, Detroit, Pittsburgh.



WEST COAST DISTRIBUTORS:

MEMBER OF THE
GRINDING WHEEL
INSTITUTE

OREGON
Portland
WASHINGTON
Seattle

Northwestern Tool and
Supply, Inc.

CALIFORNIA
Los Angeles
San Francisco

Pacific Metals
Co., Inc.

WHOLESALESALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year.
From Bureau of the Census.

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics
100 = 5 yr. Avg. 1935-39

MOUNTAIN										
	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm. prod.	Change	General Hardware	Change
August	2,208	-2	3,432	-7	473	+35	.....	.....	2,212	-3
September	820	-15	3,580	-16	490	+19	.....	.....	2,120	-12
October	1,050	-10	3,322	-9	717	+3	.....	.....	2,266	-14

PACIFIC										
	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm. prod.	Change	General Hardware	Change
August	2,430	-20	12,372	-18	.....	.....	11,182	.....	5,908	-26
September	1,725	-24	15,067	-16	1,695	-4	15,295	.....	6,863	-14
October	2,508	-10	12,157	-15	3,137	-9	8,705	.....	7,567	-13

	Los Angeles	San Francisco	Portland	Seattle	Denver
Aug. 15...	166.8	.....	.....	170.8	.....
Sept. 15...	167.1	173.0	.....	.....	.....
Oct. 15...	166.5	.....	173.6	.....	164.6
Nov. 15...	166.6	.....	.....	171.6	.....
Dec. 15...	165.4	171.5	.....	.....	.....

Industrial Supplies	Change	Lumber and bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change
2,065	-14	1,650	-22	328	-29
1,867	-23	1,948	-9	414	-24
2,057	-14	2,019	+1	429	-23

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D. C.
(1926 = 100)

	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Fur- nishing Goods	Miscella- neous	ALL COMMODITIES
1949											
August	162.3	160.6	179.0	137.9	129.7	168.7	188.2	119.7	143.0	109.8	153.0
September	163.1	162.0	181.1	139.0	130.6	168.4	189.4	117.7	142.9	109.6	153.7
October	159.6	159.6	181.3	138.1	130.6	167.3	189.2	116.0	143.0	109.0	152.2
November	156.8	158.9	180.8	138.0	130.0	167.3	189.5	116.1	143.4	109.7	151.6
December	155.3	155.7	179.9	138.4	130.8	167.8	190.3	115.3	144.1	110.7	151.3

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average = 100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
August	361	335	416	373	312	296	367	322	321	349	374	360	342	308	469	407
September	349	325	358	393	317	344	293	314	302	336	312	298	356	304	436	414
October	344	337	386	367	303	308	347	307	302	345	372	350	337	345	464	446
November	349	319	384	345	311	298	342	304	362	348	377	326	331	293	454	390
December	350	339	388	372	314	306	340	329	348	350	379	368	323	317	475	454

Continued from page 21

of which means less money to spend on farm machinery and other things, but when estimates on field crops and poultry become available, the outlook may be a little better.

On the other hand, the lumber industry, which not only dominates Oregon and Washington, but also is an important factor in northern California, northern Idaho, Montana and Colorado, seems to be on its way to a good upward swing. Of course the severe winter weather put a stop to logging operations in January and early February, but that is only a temporary setback.

Again turning to the slow side, there are the oil and mining industries. Steel

outlook seems good, although demand does not appear to be expanding.

Bits and Pieces

Bonneville Power Administration has continued until the end of 1954 the basic \$17.50 kilowatt per year rate which attracted the aluminum industry to the Pacific Northwest. After that the rate will be increased because of higher costs in the construction of new facilities, but the area will continue to have the cheapest power in the nation.

Over one-fifth of all the taxable expenditures for Californians in the third quarter of 1949 were for the purchase of maintenance of automobiles, the State Board of Equalization

reports. Greatest relative drop in sales from previous year was by dealers in farm implements, down 35 per cent.

More telephones were added to the Arizona total in 1949 than in the entire decade of the 30's. Now one telephone for every five persons in the state, including the Navajos. Valley National Bank says apparently volume of goods sold in 1949 reached an all-time high.

Beginning with the 1950 crop and production year, the basis of parity payments to producers of agricultural products will be changed from 1910-1914 to the last preceding 10 years. This is of major significance to beef, lambs and wool, potatoes, wheat and dairy products.

Oil

Major oil producers are still trying to trim production and imports to fit the 1950 pattern. Although the Bureau of Mines predicts a 3.2% increase in total U. S. demand for all oils this year, there is greater pressure than ever from abroad from vast new sources developed overseas and in Canada.

The British have turned to "sterling oil" in their efforts to conserve dollar exchange, thus pinching down on the export market for American petroleum. Some term this program a deliberate squeeze to capture the

world market from U. S. firms. New refineries overseas—some built partly with Marshall Plan money—could develop a lucrative outlet for much oil produced by American firms now drilling abroad, but the British policy means the refined product will have to be marketed outside the sterling area.

Texas Company, Standard of New Jersey, and Shell are trying to help balance the picture by cutting their foreign oil imports. A \$1-a-barrel tax on oil imports is being proposed in Congress. But the national market still is logy as result of a mild winter which has required less heating fuel than expected.

Production east of the Rockies has been cut nearly 1,000,000 barrels a day. The Texas Railroad Commission has ordered another cut in petroleum production, in the face of price declines in west central Texas and heavy production from the new Scurry County field.

Surplus oil has been going into storage at the rate of about 50,000 barrels a day and the Western market is temporarily in better shape because of huge shipments of fuel oil to the east, but these will end when spring comes.

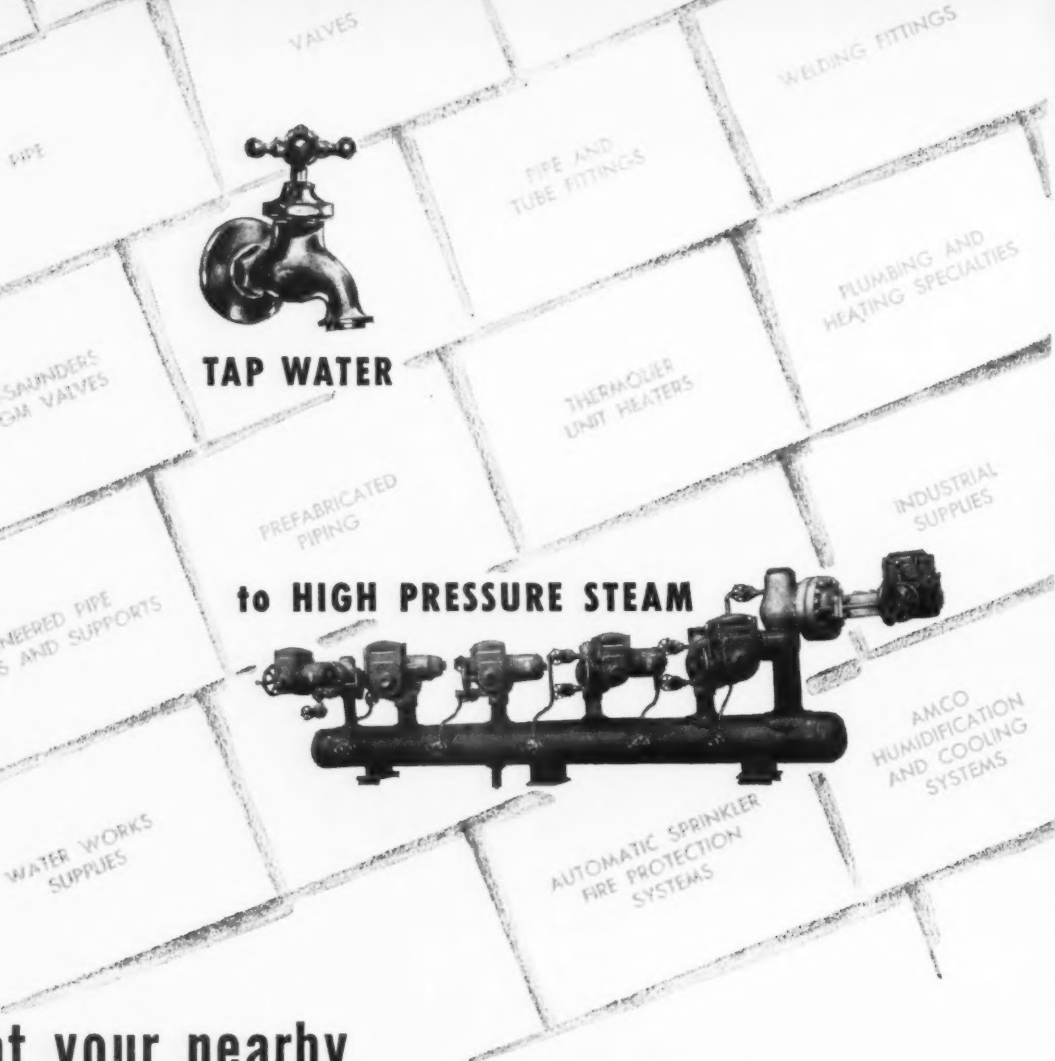
Continued on page 25

EVERYTHING for PIPING



TAP WATER

to HIGH PRESSURE STEAM



at your nearby
GRINNELL WAREHOUSE or JOBBER

More than 1000 Grinnell warehouses and jobbers . . . one within easy reach of your phone . . . are ready to give you prompt delivery on any standard piping product. When

the job calls for specialized piping products or installations, Grinnell has the manufacturing facilities, products, experience and engineering knowledge to "deliver the goods."



GRINNELL

Grinnell Company of the Pacific. Branch warehouses: Fresno • Long Beach • Los Angeles • Oakland • Pocatello • Sacramento • San Francisco • Seattle • Spokane

Continued from page 23

Softening of the oil price structure has caused Pittsburgh Consolidated Coal Company temporarily to abandon its project for commercial manufacture of gas and gasoline from coal. A major factor in the decision was poor labor relations in the coal industry.

Gas

Further Westward shipments of natural gas may be made from holdings in San Juan Basin on the Colorado-New Mexico border. The El Paso Natural Gas Company plans to build another trans-Arizona pipeline to increase movement of the fuel to southern California, permitting Kettleman Hills gas to be diverted northward to the San Francisco Bay area.

So many new gas transmission lines went into service last year that the rapid growth of liquefied petroleum gas sales has been checked. In recent years this market has expanded about 25% annually, but last winter the increase was only 1.5%.

Cold weather along the Coast in January kept gas plants and pipelines operating at full capacity, with all interruptible load shut off. A new record for 24 hours in the Los Angeles Basin was established on January 12 with 942 million cubic feet.

Incomplete returns on 1949 water heater sales indicate that Pacific Coast manufac-

turers shipped close to 450,000 water heaters during the year, as against 487,000 in 1948. While this is off some 8 per cent, it is better than the national average and indicates a tremendous recovery from mid-year fig-

ures, when 1949 shipments were off nearly 25 per cent.

Ranges and other appliances have had a similar pick-up in the fall months, with the sale of gas heating units far exceeding 1948.

NATURAL GAS (CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	— Number of Consumers —		— Utilization (in thousands of cubic feet) —			Net Receipts from Producers
	Domestic and Commercial	Industrial	Domestic and Commercial Sales	Industrial Sales	Electric Generation	
July	2,597,220	5,818	11,212,883	11,793,076	6,957,902	33,856,621
August	2,606,078	5,837	10,366,683	12,614,727	9,754,518	37,686,932
September	2,619,736	5,920	10,704,415	13,563,453	8,539,396	35,796,261

Electric Energy

The severest winter weather in many years resulted in the Pacific Northwest Power Pool establishing an all-time high January 15 of almost 4,800,000 kilowatts of electricity supplied. All interruptible loads were cut off at the peak of the storms,

affecting principally the aluminum plants. December peak in the area was 9 per cent above 1948. At the January peak, Bonneville Power Administration was supplying 58.6% of the load. With heavy rains in the Pacific Southwest Power Pool area, adequate supplies for 1950 seem certain, with additional steam power a further help.

ELECTRIC ENERGY

(Production for Public Use—in thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1948	1949	1948	1949	1948	1949	1948	1949
June	1,453,761	1,470,751	1,455,985	1,704,943	1,746,341	2,082,002	3,202,326	3,786,945
July	1,564,700	1,445,233	1,662,191	1,681,142	1,946,774	2,176,358	3,608,965	3,857,500
August	1,502,169	1,561,811	1,723,442	1,812,839	2,060,942	2,198,169	3,784,384	4,011,008
September	1,471,029	1,533,084	1,698,555	1,789,376	1,859,568	1,929,100	3,558,123	3,718,476
October	1,142,483	1,336,503	1,709,327	1,727,287	1,762,394	1,786,962	3,471,721	3,514,249
November	1,203,995	1,248,641	1,694,195	1,660,072	1,686,743	1,735,135	3,380,938	3,395,207

Coal

Bituminous coal production in the Inter-mountain area is running at less than half of normal for this season of the year. The three-day work week results in less than three days actual production time, as repair and maintenance work cannot be done on the work-free days.

In its re-estimate study of the coal resources of the United States, the U. S. Geo-



logical Survey has released a summary result table indicating the coal resources of

New Mexico to be more than 61 billion tons, of which 50 billion is sub-bituminous (beds more than 30" thick) and 11 billion bituminous with small amounts of anthracite (beds more than 14" thick), all under less than 3,000 feet overburden. The report says that "some of the bituminous coal in Colfax County possesses coking properties, which makes it of particular interest in view of the scarcity of coking coal in the western states."

Steel

Not much change in the Western steel picture in recent weeks. The supply of plates seems to be catching up somewhat with demand, or else demand has fallen off a bit, although the big pipeline jobs continue unabated. Severe winter weather in the Pacific Northwest has affected the demand for steel for its various uses in the forest products industries.

Western ore production figures for 1948 and 1949 are reported by the Bureau of Mines as follows, in gross tons:

	1948	1949
Utah	3,233,413	2,583,000
California	153,684	487,000
Wyoming	689,591	563,000

What effect the projected U. S. Steel Corporation mill in New Jersey will have on the Western steel economy is uncertain. The mill, which will operate on ore from Venezuela, will be competitive with Bethlehem's Sparrow's Point plant, but would be hardly likely to ship to the Pacific Coast any products manufactured by Columbia out here. Rumors have been flying around of a big ore deposit in Mexico, the ore to be shipped out of a new ore port to be built 25 miles south of Acapulco, on the west coast of Mexico. Supposedly some eastern financiers

IRON AND STEEL

WESTERN AREA OF THE UNITED STATES
From American Iron and Steel Institute (in net tons)

December 1949		December 1948		Total tonnage for 1949 to date	Total tonnage for 1948 to date
Output	Per Cent of Capacity	Output	Per Cent of Capacity		
189,549	76.8	216,958	98.2	2,153,417	2,263,656
December 1949		December 1948		Total tonnage for 1949 to date	Total tonnage for 1948 to date
Output	Per Cent of Capacity	Output	Per Cent of Capacity		
369,611	71.3	452,266	99.1	3,693,922	4,719,863

ALLOY STEEL

(American Iron and Steel Institute)
(in net tons)

	December 1949	December 1948
Output	9,259	5,357
Carbon Ingots, Hot Topped*	9,525	10,242

* Included in total steel.

are at work on the deal, with the idea of shipping the ore eastward through the Panama Canal to the Pacific Coast, but at this writing it was still pretty much in the dream stage.

Geneva broke three output records in January. Open hearth had 123,975 net tons of ingots, more than 6,000 tons above March, 1949, the plate mill had 80,864 net tons,

more than 5,000 tons above December, and the slab mill produced 106,609 tons, nearly 1,500 tons above March, 1949.

Nonferrous Metals

In response to improving demand, the trend is sharply upward in copper production. Other nonferrous metals are holding steady or declining, except as they are produced in conjunction with copper.

Mine output of recoverable copper fell 11 per cent in 1949 compared with 1948 and was the smallest since 1939, except for strike-ridden 1946, according to the Bureau of Mines. Michigan (32 per cent), New Mexico (25 per cent), Nevada (17 per cent), and

Continued on page 27

Now this table loves wet glasses! The Problem: Furniture manufacturers wanted a way to keep wet glasses from ruining furniture finishes and leaving white rings.

The solution: Industrial Finish Engineers were called in. Developed a special finish that not only laughs off water stains, but also resists heat, abrasion, alcohol and food stains. As a result, furniture makers have an extra selling point—a better product.



Improve your sales through Engineered Industrial Finishes!

On this page are just a few examples of the way Industrial Finish Engineering can cut down manufacturing costs and improve the selling features of a product.

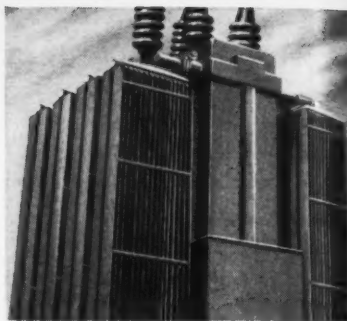
What can it do for your product?
How much can it improve sales?
How can it cut manufacturing costs?

To learn the answers, consult with an Industrial Finish Engineer.

For the Finish Industry has technical ability to make finishes equal to the purpose for which each product is bought. Remember, most of your customers start buying with the finish in mind.

The better the finish - The better the buy!

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Problem: Makers of electrical transformer boxes wanted a finish that would withstand heat of molten asphalt mixture used to anchor electrical elements in place.

Solution: Industrial Finish Engineers developed a finish that not only withstood this heat, but was also durable, good looking.



Problem: To find a finish that would protect cars from weather, corrosion, and be applied quickly.

Solution: Industrial Finish Engineers were called in. Developed a finish only three-thousands of an inch thick that resisted the elements—could be applied fast—dried fast—was durable.



Problem: To develop a colored coating to be applied to plastic articles.

Solution: Industrial Finish Engineers developed a special enamel finish. Manufacturers can now make a single run by coloring the plastic with the application of a new enamel in many colors.

Continued from page 25

Utah (15 per cent), in the order named, had larger percentage declines than the average for the United States (11 per cent). Montana (8 per cent) and Arizona (5 per cent) fell proportionately less than the country as a whole.

1947 Census of Manufactures figures on consumption of brass and wire mill shapes and forms by metal fabricating establishments in the Mountain states for that year



totaled 902 tons, in California 12,839 tons and in Oregon and Washington 495 tons.

Aluminum

Grain surpluses are a cloud hanging over the country, but they have an aluminum lining, because aluminum is being specified as the material from which grain storage bins are to be constructed. Consequently there is much tonnage ahead for the reduction works in Oregon and Washington and the rolling mill at Spokane through April. The commercial market otherwise is reported good.

Aircraft

Aviation men's long-cherished dream of a plane for every household seems to be almost as far away as ever. According to CAA Administrator D. W. Rentzel, "private flying was off again during 1949, with production of personal aircraft down 52%, and no real gains made in providing pilots with simple, less-expensive aircraft of greater utility."

This gloomy report, however, was accompanied by figures showing that although 433 airports were abandoned last year, most of them marginal and poorly located, enough new ones were started to result in a net gain of 70. CAA considers a network of the right kind of airports just as essential to mass private flying as paved roads were to the development of the automobile.

Aircraft manufacturers are picking up enough crumbs of business from the commercial market to keep production rolling at

a very moderate rate. Douglas, for example, recently sold three DC-6's to a Mexican airline, three to an Italian company, and six to United Air Lines, bringing current backlog of the million-dollar ships to 21. These orders will keep the DC-6 production line rolling well into 1951.

The military design pot still bubbles vigorously. New planes just announced include a high-speed penetration jet fighter, the swept-back wing YF-93A, test-flown by North American Aviation, and a new version of the B-47, said to be the fastest and longest-distanced jet bomber in the world. Fifteen production models of the B-47 are on order and the Air Force is expected soon to announce orders for about 80 more of the big craft.

Another "fastest" just announced by the Air Materiel Command is the X-3, termed the "nation's fastest supersonic plane," designed for speeds of about 2,200 m.p.h. in level flight and a ceiling of 200,000 to 300,

000 feet.

Preliminary tests also have been made by California Institute of Technology of a new missile that is believed capable of reaching an altitude of 500 miles, just double the present record for rockets.

Northrop is pioneering into unexplored danger areas of flying with a rocket-propelled sled which duplicates airplane crashes, to measure the terrific decelerative forces generated and learn just how much the human body can stand. The 2,200-pound sled is sent whizzing down a two-mile track at speeds up to 1,100 miles an hour, generating forces that are suddenly braked at rates as high as 35 "G's"—equivalent of slowing carriage and rider from 150 m.p.h. to 75 m.p.h. in 1/5 of a second. (A full-speed stop by jamming on automobile's brakes on may generate only about 1/2 "G.") Volunteers ride the sled to test safety devices which either cushion crash impact or automatically eject the pilot to safety.

Lumber

Old habit has been for Midwest and Eastern buyers to come out West and scout around the mills about January each year, hoping that with mills down and so on they could buy favorably on distress terms for later delivery. This time the buyers were out here 60 to 90 days early and buying eagerly, with the mills doing a good share of the dictating of who would sell for what price.

Building in the good weather areas in the East and Midwest maintained volume of sales and there appeared to be no slackening of demand from those sections. However, adverse weather conditions in the Northwest curtailed production and shipments. Many mills were closed because of extreme ice and snow. Meanwhile, the market assumed a much firmer tone. The index on Ponderosa pine went up a minimum of \$1 in January.

The West Coast Lumbermen's association reports that it has been increasingly successful in its lumber-selling program. The gains have been the result of an "intelligently planned, carefully conceived and loyally executed promotion," according to the group's new president, D. W. Gossard of Enumclaw, Wash. WCLA production and order files hit a 20-year high in 1949 while lumber production nationally dipped approximately 5 billion feet from the 1948 total.

Pulp and Paper

All mills, including British Columbia, are running at fairly good capacity, except one small obsolescent plant which may now be permanently closed. Most Sunday and overtime operations are out, however. General situation has improved month by month since the "scare" in 1949. Prices are pretty good, with unbleached sulphite selling for about \$100 per ton and bleached about \$120. Somewhat more emphasis on quality. Order file is good and foreign producers are not pressing their depreciated money advantage which is now 10% for Canadian pulp and 30% for Scandinavian. Legal directive to curb pollution will compel large expenditures for plant improvement. Potlatch Forests, Inc. now buying major equipment for their big new mill in Idaho.

Census figures show the following comparative production figures for the Pacific Coast states, in tons:

	1947	1948
COARSE PAPER		
Pacific states, total.....	347,088	353,859
Oregon		93,888
Washington and Calif....		259,971
CONTAINER BOARD		
Pacific states, total.....	337,123	330,304
Washington		164,412
Oregon and California....		165,892
NONBENDING BOARD		
Pacific states, total.....	24,961	15,899
Washington		3,730
California		12,169

AIR FREIGHT

(In pounds. Figures from airports)

	Las Angeles		San Francisco		Oakland		Portland		Seattle	
	In	Out	In	Out	In	Out	In	Out	In	Out
August	1,292,300	1,260,319	1,608,977	937,110	111,884	241,723	.....	.....	437,172	889,494
September	1,435,127	1,343,327	958,438	1,383,804	97,912	249,726	.....	.....	446,615	932,605
October	1,466,002	1,526,568	1,137,901	1,269,481	116,344	171,614	.....	.....	463,149	885,980
November	1,300,850	1,391,597	967,135	1,075,337	102,351	150,148	.....	.....	.....	.....
December	1,511,280	1,495,057	.....	.....	126,828	155,506	.....	.....	483,843	792,960

BREAKS ALL RECORDS!



FIRST STEAM HOSE TO GIVE OVER 2000 HOURS CONTINUOUS SERVICE

at 200 lbs. Working Pressure!

Steam Hose users have long been stymied by the costly problem of tube-swelling during normal service life of ordinary hose. They turned to BWH for the solution.

BWH came up with the answer . . . CONCORD #20! In building this revolutionary new hose, the rubber tube was first locked securely between two braids of high tensile steel wire. The cover and static wires were added. Then the new construction was subjected to a *continuous* flow of 200 lbs. working pressure for over 2000 hours! At the end of this record-smashing test, the tube showed no evidence of hardening or swelling! Couplings were re-attached without the slightest difficulty because the original inside diameter of the tube was maintained throughout!

In addition to its many other advantages, Concord #20 features a specially treated cover which protects it against oil, grease, heat, strong sunlight and abrasion!

Ask your BWH distributor to demonstrate the whip-like flexibility of this rugged new hose. Check the braids of high-tensile steel wire which give Concord #20 strength without bulk. Concord #20 Steam Hose does the job without breaking the operator's back . . . is assurance against "flash" explosions . . . and, from the inside out, is your guarantee of unequalled service life.

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Bring us your toughest problems. We're specialists in solving them. Consult your nearest BWH distributor or write us direct.

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Continued from page 27

1950, adding about six million feet a month, panels which require lots of promotion and missionary marketing. Door market is very strong.

Building Materials

American Appraisal Company's construction cost index shows a slight decline for December over November. Their figures are for four Western cities, showing average costs under normal conditions, the indexes reflecting the cost trend in each city but not the relative trend between cities. They are as follows:

	All-Time High Oct. 1948	Nov. 1949	Dec. 1949
Denver	458	438	436
Seattle	523	503	501
San Francisco	460	442	442
Los Angeles	488	471	470

Flour

Domestic prospects continue as before, with bakers unwilling to buy ahead because they see a big wheat crop coming up, with wheat running out of our ears already, and evidently unaware of the fact that the law of getting votes to keep a political party in power takes precedence over the law of supply and demand in these days. Representatives of General Mills and Fisher have been

Cement

Storms in Oregon and Washington and heavy rains in California slowed the cement business down to a slow walk in January and early February. Permanent Cement Company, whose Portland distribution plant has been used as a transfer point for cement used in the construction of McNary Dam, have begun supplying the construction industry throughout Oregon from this plant. It has a bulk storage capacity of

72,000 barrels, and has a modern packhouse equipped with automatic bag packers with a daily capacity of 48,000 sacks.

CEMENT

(In thousands of bbls.)
(From U. S. Bureau of Mines)

	December 1949	December 1948
California	1,881	1,679
Oregon-Washington	272	317
Colorado-Wyoming, Montana, Utah-Idaho	276	353



in the Philippines in the hopes that the market there could be weaned away from Canada. Grinds have been fairly good, with mills in the Far West running about 75 per cent of capacity. Mill run market has been weak, especially in southern California, because Kansas City millers have been shipping in there at low prices. The feed business also has been weakened by the killing off of turkeys and chickens. Pillsbury's mill at Astoria has been closed down.

WHEAT FLOUR

(In thousands of sacks. From Bureau of the Census)

	Ore.-Wash.	Montana	Utah	Colorado	California	Total
July	1,217	237	329	337	396	2,516
August	1,362	264	352	401	412	2,791
September	1,219	256	311	319	398	2,503
October	1,191	249	310	373	403	2,526
November	1,115	233	311	362	333	2,354

Sugar

A record-breaking 1950 crop of beets seems to be in the making, although no figures were available at this writing. The second beet sugar producer to enter the carton field with powdered sugar is Holly Sugar Company, who have set up a carton packaging line in their plant at Tracy, California. Spreckels Sugar Company, who formerly handled cane sugar in small cartons

at the time they owned a cane refinery at San Francisco which they sold two years ago to California & Hawaiian Sugar Refining Company, were the first of the beet processors to enter the carton field.

Canning and Packing

If politics were to be left out of the picture, California canning peach growers undoubtedly would be curtailing the 1950 crop by means of re-sizing programs like the one introduced last year, and by marketing

allotments and tree removal. In fact, this is what members of the California Canning Peach Association already have been discussing. But at the recent National Canners Association convention at Atlantic City, where the canners were addressed by Secretary of Commerce Sawyer, the main piece of news that went out over the news wires was the sound-off of a California congressman that the decline in prices to growers from \$125 a ton down to \$25 last year must not be repeated. So, as long as the federal government can be importuned for more money, the growers may be protected. Canners from the Pacific Coast found buyers at the convention in a very indifferent mood, which does not augur for a happy spring selling season.

January 1 inventory figures from the Canners League of California show 2,123,005 more cases of cling peaches on hand than a year ago, but the deep price cuts late in the fall evidently had their effect, because 1,566,051 more cases were moved between June 1, 1949 and Jan. 1, 1950 than in the corresponding seven months of 1948. Other items of fruits and vegetables are relatively in better position than cling peaches, and comparative figures for stocks on hand, sold and unsold, are as follows:

	Jan. 1, 1949	Jan. 1, 1950
Apricots	2,863,604	1,623,907
Cherries	39,527	280,525
Cling Peaches	7,991,738	10,114,743
Free Peaches	887,000	869,114
Pears	627,204	961,068
Fruit cocktail	6,017,979	5,227,246
Fruits for salad	436,931	668,378
Mixed fruits	90,317	429,151
Tomatoes	3,665,984	3,149,739
Tomato juice	4,446,421	4,704,936
Tomato catsup	4,051,306	2,683,264
Tomato chili sauce	671,819	379,992
Tomato and/or hot sauce	3,438,109	2,712,264
Tomato puree	936,652	819,300
Tomato paste	2,018,507	1,947,857
Other tomato products	42,278	29,684
Asparagus	306,218	548,799
Spinach	141,461	322,903

ETHYL ALCOHOL

(From Bureau of Internal Revenue)
Production (in proof gallons)

1949	California	Colorado	Washington
July	451,006		
August	416,574		174,602
September	527,974		214,617
October	290,758		194,576
November	437,394		235,697
December	410,180		266,060

DENATURATED ALCOHOL

1949	California Completely Denatured	—Specially Denatured— California Utah Washington
July	4,566	171,858 8,142
August	21,669	260,509 16,286
September	2,418	211,084 16,242
October	19,379	231,696
November	10,202	263,381
December	13,550	234,257 8,196

CONFECTIONERY AND COMPETITIVE CHOCOLATE PRODUCTS

(From Bureau of Census)
(In thousands of dollars)

	COLO. - IDAHO - UTAH			— WASH. - OREGON —			— CALIFORNIA —		
Month	Sales	Per Cent Change from same month of Preceding Year		Sales	Per Cent Change from same month of Preceding Year		Sales	Per Cent Change from same month of Preceding Year	
July	272	—13		265	+67		1,245	—15	
August	336	—6		241	—		1,849	—6	
September	593	—		573	+9		2,009	—8	
October	683	—15		577	+6		2,613	—11	
November	861	—12		781	—11		3,038	—9	

* Change of less than 0.5 per cent.

Total fruit and vegetable pack figures for California from the Canners League of California show 63,109,075 cases in 1949, only 400,000 cases below 1948. The fruit pack was reduced about 2,000,000 cases from the year before, but the vegetable pack increased enough to offset most of this. Both fruits and vegetables, however, have dropped off about 20 per cent from the peak season of 1946.

Most of the individual pack figures already have been reported, but those not previously published are: apple sauce, 492,502 cases; figs, 279,286 cases; "other fruits" (apples, grapes, nectarines, plums and prunes in syrup) 605,035 cases. All these on a converted No. 2½ can basis. Vegetables not previously reported, in actual cases are:

Continued on page 31



**PACKAGING TIME
CUT 50%**

**PACKAGING COSTS
CUT 60%**

**Read how
this manufacturer
makes big savings with STANLEY STEEL STRAPPING**

You know that waste of time, labor and money packaging any product can cut deep into over-all profits. This typical case history shows just how big a saving the Stanley Steel Strapping System can make.

The Keystone Metal Moulding Company of East Detroit, Michigan, cut packaging time 50% by change from small cartons to large carton on a skid. New carton is closed, reinforced and bound to the skid with Stanley Steel Strapping. Packaging costs reduced a full 60%.

Figures like these from manufacturer after manufacturer who has switched to the Stanley Steel Strapping System tell a story you can't afford to ignore. Whatever your product — no matter how big or how small — check on the savings Stanley Steel Strapping can make in *your* Shipping Room.

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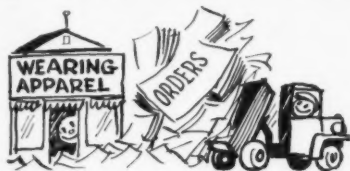
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STEEL STRAPPING AND CAR BANDING SYSTEMS
HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

Continued from page 29

string beans, 715,448 cases; carrots, 97,781 cases; spinach, 1,960,412 cases; "other vegetables" 1,708,996 cases, of which dried beans, peas and hominy made up approximately 630,000 cases.

Sardine pack for 1949 in California was more than 4,300,000 cases, first good year since 1944-45, and was due to return of the fish to coastal waters. Southern California had most of the pack, 2,402,882 cases, as against 1,700,000 for northern California.



Apparel

Pick-up in retail clothing business, with January sales running well ahead of last year's mediocre showing, encourages Western manufacturers to expect a good year. More than 3,400 buyers attended California Apparel Creators' regular January "Market Week" showings and placed orders totalling \$25,000,000, an all-time record.

Change in trade psychology has been stimulated by upturns in most raw materials. Rayon textiles and cotton goods show modest price advances and American Woolen has just withdrawn current price schedules, a move that heretofore has always foreshadowed markup in prices.

The trade is buying more heavily to rebuild inventories. Many buyers are spreading their orders over more lines, so as to offer the finicky customer greater variety.

This year's unfavorable weather in the southern cotton belt has helped western growers solidify their position in U. S. textile markets. Perfect harvest conditions and a new strain of cotton enabled California producers to sell to Eastern mills which ordinarily do not buy irrigated cotton. Their experience is bringing repeat orders because of high quality of new cotton strains recently planted, indicating permanent demand for the western product.

Signing of the 75-cent-an-hour minimum wage may help western manufacturers meet competition from southern and eastern producers who heretofore have been able to sell for 20 to 25 cents per garment less. The cost differential, representing lower labor costs, should be largely wiped out by the new minimum wage.

Montana Encouraged

ESTABLISHMENT of an inter-college engineering coordination organization has been made in Butte, the function of which is to coordinate industrial and engineering research now being offered in colleges in Pacific Northwest. The organization will exchange and publish information on research work in various colleges to encourage development of regional resources and promote fundamental and applied industrial and engineering research.



HORTON ELEVATED TANKS

for fire protection

It's wise to provide a dependable water supply when you install an automatic fire protection system in your plant. This can be done by installing a Horton elevated steel tank as either the primary or secondary source.

When you install a Horton tank, the water is held in reserve for fire protection purposes only. The instant a sprinkler head opens, water flowing by gravity pressure extinguishes the flames before they have a chance to gain headway.

The 75,000-gal. tank at the left is located at the Continental Can Company's plant in Portland, Oregon. It supplies gravity water pressure in the automatic sprinkler system if the pressure in the city mains drops too low.

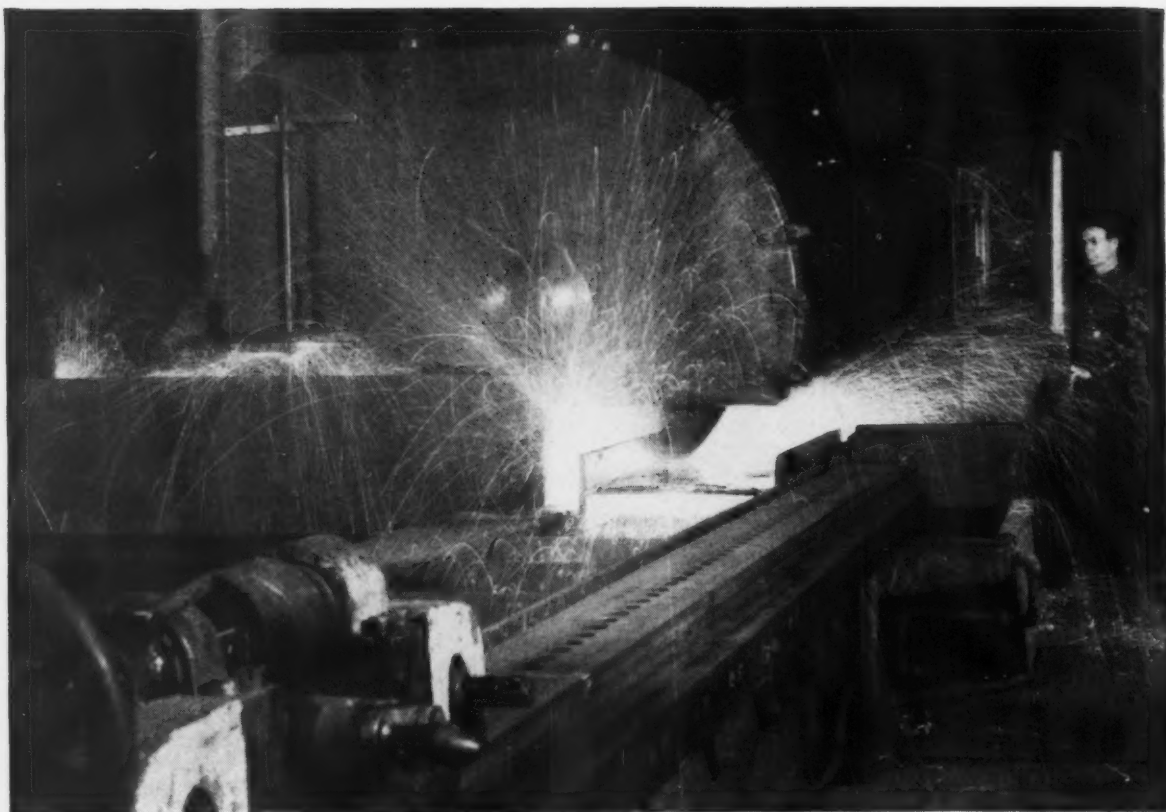
LOCAL SERVICE... Our new plant at Salt Lake City is now equipped to fabricate a complete line of steel plate structures including elevated tanks. Write the nearest office for information or quotations.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2144 Healey Building
Birmingham 1.....1560 North 50th Street
Boston 10.....1065-201 Devonshire Street
Chicago 4.....2132 McCormick Building
Cleveland 15.....2256 Guildhall Building
Detroit 26.....1567 Lafayette Building
Houston 2.....2164 National Standard Building

Los Angeles 14.....1570 General Petroleum Building
New York 6.....3334-165 Broadway Building
Philadelphia 3.....1666-1700 Walnut Street Building
Salt Lake City 4.....568 West 17th South Street
San Francisco 11.....1278-22 Battery Street Building
Seattle 1.....1369 Henry Building
Tulsa 3.....1667 Hunt Building

Plants in: BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.



Cuts Beams Like Butter . . .

To Give You Quick, Accurate Steel Service

Biting through a 24 inch beam at a Ryerson plant, this big friction saw completes the cut in 11.6 seconds—literally cuts hard steel like soft butter. The speed of the cut results in the very minimum of burr and a new method of maintaining blade alignment assures a straight, true edge.

This new saw is typical of the equipment that's ready to work for you at your nearby Ryerson plant. Another—a new metal saw with a big 18 x 18 inch capacity. Using high speed hack saw blades, it cuts bar steel to close-tolerances, and every cut, square or angular, has an unusually accurate surface.

Then there's the flame-cutting machine, with an electric eye to follow your sketch or blue-print,

which cuts irregular shapes with amazing accuracy—to within fifteen thousandths of an inch! These machines, and many others, work for you as your own when you call us for steel from stock.

No other steel service organization in America is better equipped. Few can serve steel buyers nearly as well. For steel cut *exactly* the way you want it, get in touch with our nearest plant.

PRINCIPAL PRODUCTS

BARS—Carbon & alloy, hot rolled & cold finished

STRUCTURALS—Channels, angles, beams, etc.

TUBING—Seamless & welded mechanical & boiler tubes

STAINLESS—Allegheny metal plates, sheets, bars, etc.

PLATES—Sheared & U. M., Inland 4-Way Floor Plate

SHEETS—Hot & cold rolled, many types & coatings

MACHINERY & TOOLS—For metal working

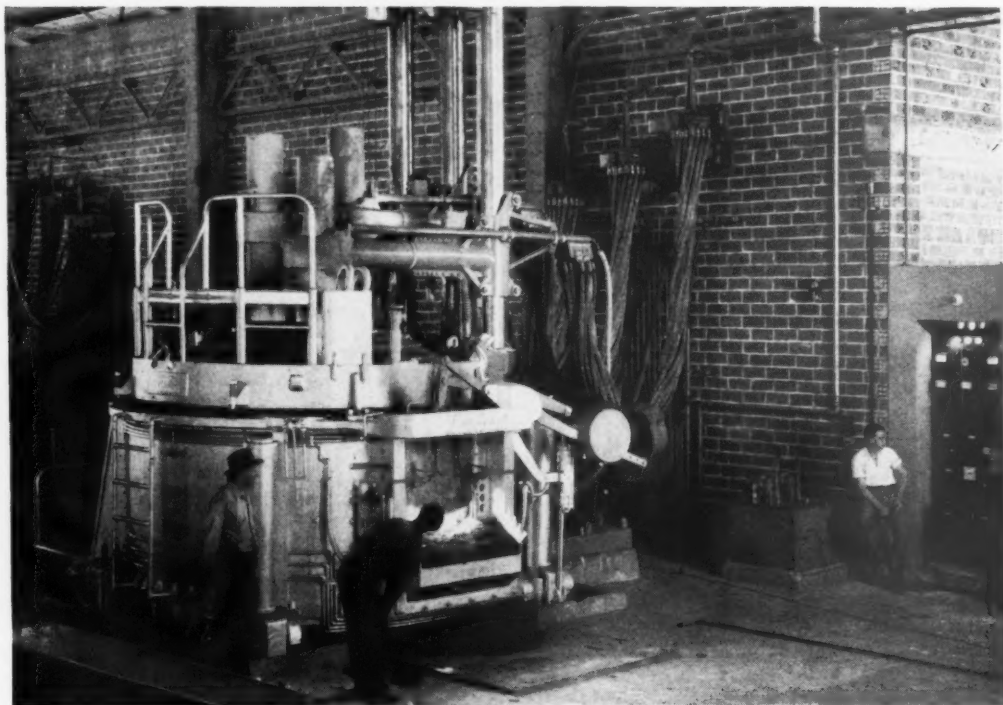
RYERSON STEEL



LOS ANGELES PLANT: Mail Address: Box 3817, Los Angeles 54, Calif. Plant: 4310 E. Bandini Blvd., Phone: ANGelus 2-6141.
From San Diego (No toll) Phone ZENith 6660.

SAN FRANCISCO PLANT: Mail Address: Box 188 Emeryville. Plant: 65th & Hollis Streets. Phones: OLYmpic 3-2933, Enterprise 10176.

THE INDUSTRIALIZED WEST



FROM STEEL SCRAP TO SALABLE STEEL—Huge cranes with electromagnets carry the scrap steel to each of three melting furnaces at Oregon Steel Mills Plant, Portland. Each furnace is eleven feet in diameter and well lined with basic refractory bricks. With heat supplied by carbon electrodes, time between charging and pouring is about two hours, 15 minutes. Furnaces are tilted by hydraulic pistons. Steel flows into the molds in one of eight concrete pits. Control panel at right.

How 211 Plants in the West Organize Their Operations

THE first installment of a study of management and operating practices used in industry in the West, covering 211 plants of various kinds and sizes in California, Oregon, Washington, Idaho, Utah and Colorado is presented to our readers in this article. It was initiated by *Western Industry* and is the first broad survey of its kind ever made by anyone in the West.

Its purpose is to show the present stage of development in the phases of operations dealt with, and to indicate

the trends, in order to serve as a guide to industrialists. Furthermore, as the question is continually raised as to whether Western operating methods are as efficient as Eastern, reports from the plants have been segregated according to the origin of their methods and systems. In many plants, the methods are a combination of Eastern and Western ideas, and a separate classification for them has been set up wherever possible.

Plants reporting in the survey covered wide ranges of size and kind, as

well as geographic area. As the information was obtained on a confidential basis, the results are published herewith in consolidated form, as may be seen by the accompanying tabulations.

The summary covers, in brief, the following main classes of information:

1. Division of functions between departments. (Research, development, design engineering, production engineering, industrial engineering, estimating, tool designing, production control, dispatch-



- ing, scheduling, expediting. Also use of organization charts.)
2. Communications. (Transmission of instructions, manuals for organization, policy, procedure, job description, new employees.)
3. Operating methods and procedures. (Methods, standards, production engineering and production control programs, labor efficiency, labor costs.)

4. Controls. (Inspection, quality control, inventory control, budget control.)

The number of plants reporting and the types of operations involved include the following:

Southern California: 52 plants. Metal fabrication, 23; wood fabrication, 4; ceramics, 4; plastics, 3; remained scattered through cloth and leather, chemicals, gas, electric power,

Reports from 211 plants in Western Industry's

I. DIVISION OF FUNCTIONS—

Under What Departments or Persons the Various Functions Fall

ORIGINAL PRODUCT RESEARCH

Southern California		<i>Eastern Methods</i>		Quality Control		1	Idaho		
<i>Western Methods</i>		Research		1	Research		2	<i>Western Methods</i>	
Engineering	9	Manufacturing Engineering		1	Foreman		1		
Research, Development and Engineering	3	Not done		1	Supervisors		1		
Executive Management	3	Oregon		Consultant		1	Engineering and Sales		
Production	2	<i>Western Methods</i>		Engineering and Admin- istration		1	General Manager		
Research	1	Research		3	Research and Engineering		1	<i>Eastern Methods</i>	
Research and Engineering	1	Development		2	Other departments		6		
Research and Development	1	Engineering		2	Not done		13	<i>Mixed Methods</i>	
Quality Control	1	Research and Production		1	<i>Eastern Methods</i>		No reports		
Sales	1	Engineering and Develop- ment		1	Engineering		2	Utah	
Owner	1	Quality Control		1	Production		1		
Not done	3	Not done		13	Research and Development		1	(Methods not segregated as to origin)	
<i>Eastern Methods</i>		<i>Eastern Methods</i>		None		<i>Mixed Methods</i>			
Research	2	Research		2	Industrial Engineering		1		
Engineering	2	None		<i>Mixed Methods</i>		Research		1	
Research department of eastern plant	1	<i>Mixed Methods</i>		Not done		2	Production Control		
Not done	2	Western Washington		<i>Western Methods</i>		Research Lab.		1	
<i>Mixed Methods</i>		Engineering		10	Eastern Washington		Other Departments		
Research	2	Production		7	<i>Western Methods</i>		Engineering		
Not done	2	Development		6	Engineering		1	<i>Western Methods</i>	
Northern California		Executive Management		4	Not done		1		
<i>Western Methods</i>		Owner		3	<i>Eastern Methods</i>		Research-Technical Dept.		
Engineering	4	Production Control		3	No reports		Research-Laboratory		
Research	1	Purchasing		2	<i>Mixed Methods</i>		Production		
Sales and Research	1	Laboratory		1	Engineering		1	<i>Eastern Methods</i>	
Engineering and Production	1	Research and Engineering		1	No reports		Industrial Engineering, Engineering and Metal- lurgical		
Production	1	Engineering and Produc- tion Control		1	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
Quality Control	1	<i>Western Methods</i>		Engineering		1	Engineering and Metal- lurgical		
General Manager	1	Research		5	<i>Eastern Methods</i>		Engineering and Metal- lurgical		
Not done	4	Executive Management		1	No reports		Engineering and Metal- lurgical		
<i>Eastern Methods</i>		Not done		6	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
Research	2	<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
Not done	2	<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
<i>Mixed Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
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<i>Eastern Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
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<i>Mixed Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
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<i>Eastern Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
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Research	1	Not done		2	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
<i>Eastern Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
Research	1	Not done		2	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
<i>Mixed Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
Research	1	Not done		2	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
<i>Western Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
Research	1	Not done		2	<i>Mixed Methods</i>		Engineering and Metal- lurgical		
<i>Eastern Methods</i>		<i>Eastern Methods</i>		Research		1	Engineering and Metal- lurgical		
Research	1	Not done		2	<i>Mixed Methods</i>		Engineering		

oil, milk products.

Northern California: 28 plants. Food products, 12; metal fabrication, 9; wood fabrication, 7.

Oregon: 29 plants. Wood fabrication, 16; metal fabrication, 8; textiles, 1; dairy products, 1; paper, 1.

Western Washington: 84 plants. Metal fabrication 36; wood fabrication, 22; remainder scattered through plastics, concrete, textiles, leather,

paint, glass, pulp and paper, printing.

Eastern Washington: 8 plants. Metal and wood fabrication, electric power, clay products.

Idaho: 4 plants. Metal and wood fabrication, dairy products.

Utah: 18 plants. Metal and wood fabrication, oil, chemicals, other products.

Colorado: 6 plants. Metal, 5; wood products, 2; rubber goods, 1.



cooperative survey of methods and systems

Engineering 1
Other departments..... 3
Not done..... 11

Western Washington

Western Methods

Development 3
Production Control..... 3

Research 2
Engineering 2
Owner 2
Production 1
Engineering and
Administration 1
Industrial Engineering 1
Other departments 1
Consultant 1

Not done..... 32

Eastern Methods

Research 1
Engineering 1
Parent company 1
Not done..... 5

Mixed Methods

Research 2

Management 1
Not done..... 1

Eastern Washington

Western Methods

Research 1
Not done..... 1

DEVELOPMENT

(Functional product development up to drawing stage)

Southern California

Western Methods

Engineering 12
Research 2
Production 2
Model Shop..... 2
Research and Development..... 1
Tooling and Production,
plus outside consultant..... 1
Sales 1
General Manager 1
Owner 1
Not done..... 2

Eastern Methods

Research 1
Engineering 1
Design 1
Not done..... 2

Mixed Methods

Development 2
Sales and Design..... 1

Northern California

Western Methods

Engineering 7
Research 4
Sales 1

Development 1
Engineering and Production..... 1
Not done..... 7

Eastern Methods

Research 1
Development 1
Mfg. and Engineering 1
Not done..... 1

Oregon

Western Methods

Engineering 3
Research 2
Development 2
Research, Development
and Engineering 1
Production 1
Executive Management..... 1
Not done..... 13

Mixed Methods

Not done..... 2

Western Washington

Western Methods

Engineering 13
Development 8
Executive Management..... 4

Production 5
Purchasing 2
Production Control..... 2
Research 2
Supervisors 2
Superintendent 1
Laboratory 1
Foreman 1
Management and salesmen..... 1
Owner 1
Consultant 1
Other departments..... 4
Not done..... 13

Eastern Methods

Research and Development..... 1
Engineering 1
Sales Engineer 1
Various departments..... 1
Not done..... 5

Mixed Methods

Research 1
Sales 1

Eastern Washington

Western Methods

Development 1
Not done..... 1

Mixed Methods

Engineering 1
Executive Management..... 1

Idaho

Western Methods

Engineering 1
Engineering and Sales..... 1
Production 1
Not done..... 1

Utah

Research 1
Engineering 1
Development 1
Other departments..... 7
Not done..... 6

Colorado

Western Methods

Research 1
Engineering 1
Tooling 1
Industrial Engineering
and Section Engineer..... 1
Executive Management..... 1
Not done..... 1

DESIGN ENGINEERING

(Reducing the product to drawings)

Southern California

Western Methods

Engineering 15
Design Engineering 2
Tooling and Production..... 1
Production 1
Research 1
Industrial Engineering 1
Sales 1
Outside consultant 1
Executive Management..... 1

Owner 1
Not done..... 2

Eastern Methods

Engineering 2
Design 1
Not done..... 2

Mixed Methods

Design 1
Engineering 1
Development 1

Northern California

Western Methods

Engineering 7
Production Control
and Sales 3
Methods Engineering 1
Executive Management..... 1
Not done..... 8

Eastern Methods

Engineering 1

Manufacturing Engineering..... 1
Not done..... 2

Oregon

Western Methods

Engineering 6
Production 1
Outside consultant 1
Not done..... 11

Mixed Methods

Not done..... 2



To set the survey in motion, a questionnaire was prepared by the editorial staff of *Western Industry* in cooperation with management consultants and professors of business administration and engineering from a number of universities in the West. Replies to the questionnaire were obtained in personal interviews with company executives by consultants, graduates and undergraduate students in business ad-

ministration and engineering, and in one case by members of the faculty themselves. Tabulation was done by *Western Industry*.

In preparing the questionnaire, *Western Industry* enjoyed the cooperation of the following management consultants: (San Francisco) Al Weronlin, Pacific Coast vice-president and partner, McKinsey & Company; E. D. Hayward, vice-president, Production

First analysis ever made of the set-up u

DESIGN ENGINEERING

Continued from page 35

Western Washington		<i>Mixed Methods</i>		Engineering and Production.. 1		Research		1	
<i>Western Methods</i>		Engineering		Pattern		Executive Management.....		1	
Engineering	22	Drafting Department		Tooling					
Development	5			Supervisors					
Production	4			Not done.....		11			
Supervisors	2								
Production Control	1								
Research, Engineering and Development	1								
Research	1								
Purchasing	1								
Foreman	1								
Owner	1								
Consultants	1								
Other departments.....	4								
Not done.....	14								
<i>Eastern Methods</i>									
Engineering	4								
Various departments	1								
Not done.....	3								
<i>Mixed Methods</i>									
Executive Management.....	1								
Not done.....	2								
Eastern Washington									
<i>Western Methods</i>									
Engineering	1								
Plant Production Engineer....	1								
<i>Mixed Methods</i>									
Engineering	1								
Not done.....	1								

PRODUCTION ENGINEERING

(Reducing drawings to practical production)

Southern California		Northern California		Southern California		Production and Methods	
<i>Western Methods</i>		<i>Western Methods</i>		<i>Western Methods</i>		Engineering	
Engineering	12	Engineering	5	Industrial Engineering	9	Consultants	
Production	3	Production	2	Production	5		
Superintendent	2	Production Control and		Engineering	3		
Owner	2	Industrial Engineering	1	Executive Management.....	2		
Tooling and Production.....	1	Methods Engineering	1	Methods Engineering	1		
Methods Engineering	1	Pattern-making	1	Superintendent and			
Die shop	1	Not done.....	10	Consultants	1		
General Manager	1			Consultants	1		
Not done.....	2			Tooling	1		
<i>Eastern Methods</i>				President and Chief Engineer	1		
Engineering	3			Not done.....	1		
Not done.....	1						
<i>Mixed Methods</i>							
Development	1						
Methods Engineering	1						
Executive Management							
and outside consultant.....	1						

INDUSTRIAL ENGINEERING

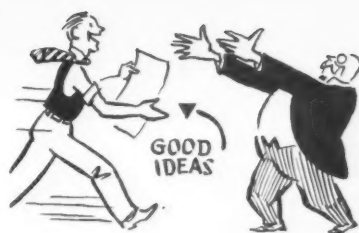
(Methods, motion and time studies, plant layout, etc.)

Southern California		Northern California		Southern California		Production and Methods	
<i>Western Methods</i>		<i>Western Methods</i>		<i>Western Methods</i>		Engineering	
Engineering	12	Engineering	5	Industrial Engineering	9	Consultants	
Production	3	Production	2	Production	5		
Superintendent	2	Production Control and		Engineering	3		
Owner	2	Industrial Engineering	1	Executive Management.....	2		
Tooling and Production.....	1	Methods Engineering	1	Methods Engineering	1		
Methods Engineering	1	Pattern-making	1	Superintendent and			
Die shop	1	Not done.....	10	Consultants	1		
General Manager	1			Consultants	1		
Not done.....	2			Tooling	1		
<i>Eastern Methods</i>				President and Chief Engineer	1		
Engineering	3			Not done.....	1		
Not done.....	1						
<i>Mixed Methods</i>							
Development	1						
Methods Engineering	1						
Executive Management							
and outside consultant.....	1						

Management Engineering Associates; Arthur Dobson; Walter G. Collins of Bunker and Collins; and David Amour, of Amour, Timbers & Associates; (Los Angeles) Benjamin Borchardt; C. W. S. Parsons. In the university field we had Louis E. Davis, assistant professor of mechanical engineering, University of California, Berkeley. Help from others would have been asked had time permitted.

Interviewing of plant executives and transmitting the information to *Western Industry* for tabulation was carried on in the different areas by the following:

Southern California. Consultants: Benjamin Borchardt & Associates; Chas. T. Gilliam & Associates; Vernon Keeler & Associates; Don Saurenman Company. University: Graduate students in business administration,



under which Western plants are operated

Oregon

Western Methods

Production	3
Development	1
Engineering	1
Supervisors	1
Executive Management	2
Not done	11

Mixed Methods

Executive Management	1
Not done	1

Western Washington

Western Methods

Production	9
Engineering	5
Industrial Engineering	4
Production Control	2
Owner	2
Consultants	2
Superintendent	1
Production and Administration	1
Development	1
Supervisors	1
Traffic Department	1
Shop Foreman, Owner and Asst. Mgr.	1
Not done	18

Eastern Methods

Production	2
Engineering	1
Industrial Engineering	1
Not done	4

Mixed Methods

Industrial Engineering	1
Accounting Department and Engineering	1
Executive Management	1
Not done	1

Eastern Washington

Western Methods

Methods Engineering	1
Not done	1

Mixed Methods

Outside Consultant	1
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Idaho

Western Methods

Not done	4
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Utah

(Origin not segregated)

Engineering	1
Production	1
Other departments	9
Not done	7

Colorado

Western Methods

Production	3
Industrial Engineering	2
Not done	1

Eastern Methods

No reports.	
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Eastern Methods

Accounting	2
Cost Department	1
Engineering	1

Oregon

Western Methods

Executive Management	4
Sales	3
Engineering	3
Engineering and Foreman	1
Development	1
Production Control and Engineering	1
Methods Engineering	1
Owner and assistant	1
Not done	8

Mixed Methods

Not done	2
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Western Washington

Western Methods

Engineering	14
Executive Management	10
Production	4
Sales	3
Superintendent	2
Owner	2
President and Superintendent	2
Engineering and Accounting	1
Foreman	1
Estimator	1
Cost Department	2
Development	1
Salesmen and Executive Management	1
Foreman and Manager	1
Production and Sales	1
Research	1
Purchasing	1
Production and Engineering	1
Production and Purchasing	1
Owner and Salesmen	1
Engineering, Prod. Control and Exec. Management	1

Other Departments	5
Consultant	1
Not done	7

Eastern Methods

Production	1
Engineering	1
Accounting Department and Sales Engineer	1
Not done	3

Mixed Methods

Executive Management	2
Sales and General Manager	1

Eastern Washington

Western Methods

Engineering	1
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Mixed Methods

Production, Drafting and Sales	1
Sales Engineer	1

Idaho

Western Methods

Production	2
Production and General Manager	1
Engineering	1

Utah

(Origin not segregated)

Engineering	1
Other departments	12
Not done	5

Colorado

Western Methods

Cost Accounting	1
Production	1
Sales	1
Industrial Engineering and Accounting	1
Executive Management	1

ESTIMATING (A)

(Original competitive estimates to bid on new work)

Southern California

Western Methods

Production	6
Engineering	4
Industrial Engineering	4
Sales	4
Executive Management	2
Owner	2
President and Chief Engineer	1
Superintendent	1
Estimator	1
Contract Administration	1
Not done	1

Eastern Methods

Engineering	1
Production and Engineering	1
Plant Manager	1

Mixed Methods

Industrial Engineering	1
Cost Department	1
General Manager	1

Northern California

Western Methods

Cost Department	5
Engineering	2
Methods Engineering	1
Market	1
Estimating	1
Cost and Production Control	1
Sales	1
Industrial Engineering and Production	1
Not done	8

ESTIMATING (B)

(Machine-time or operating-time estimating for jobs going through shop)

Southern California

Western Methods

Production	7
Industrial Engineering	6
Engineering	3
Superintendent	2

Owner	2
Production Control	1
Production and Sales	1
Sales	1
Shop foreman	1
President and Chief Engineer	1
Department heads	1



under the direction of Melvin E. Salvesson, lecturer in production management, College of Business Administration, University of California at Los Angeles.

Northern California. Consultants: E. D. Hayward, vice-president, Production Engineering Management Associates; Harry T. Raynor; Thomas W. Maxwell. University: Students in mechanical engineering, under the di-

rection of D. G. Malcolm, assistant professor of mechanical engineering, University of California, Berkeley.

Oregon. Consultants: Charles W. English, president, Production Engineering Management Associates; Laurin E. Hinman; Thomas R. Miles. University: Members of the industrial engineering staff at Oregon State College, under the direction of Robert N. Lehrer, assistant professor, depart-

Survey may serve as measure of comparison

ESTIMATING-B

Continued from page 37

Eastern Methods
Industrial Engineering 1
Engineering and Industrial
Engineering 1
Methods 1
Plant Manager 1

Mixed Methods
Industrial Engineering 2
Methods Engineering 1
Superintendent 1

Northern California

Western Methods
Cost Department 3
Engineering 2
Methods Engineering 1
Estimating 1
Production 1
Industrial Engineering 1
Production Control 1
Executive Management 1
Not done 10

Eastern Methods
Industrial Engineering 1
Engineering 1
Accounting 1
Not done 1

Oregon

Western Methods
Production 3
Engineering 2
Production Control 2
Development 1
Production Control and
Management 1
Research 1
Executive Management 1

Mixed Methods
Superintendent 1
Not done 1

Western Washington

Western Methods
Production 12
Engineering 9
Production Control 6

TOOL DESIGNING

Southern California
Western Methods
Engineering 6

Superintendent 3
Foreman 3
Executive Management 3
Development 1
Engineering and Accounting 1
Industrial Engineering 1
Production and other
departments 1
Sales 1
Consultant 1
Owner 1
Other departments 4
Not done 11

Eastern Methods
Production 4
Engineering 1
Not done 4

Mixed Methods
Executive Management 1
Not done 2

Eastern Washington

Mixed Methods
Sales Engineer 1
Production 1

Idaho

Western Methods
Production 2
Production and Executive
Management 1
Engineering 1

Utah

(Origin not segregated)
Engineering 1
Production 1
Production Control 1
Other departments 9
Not done 6

Colorado

Western Methods
Production 2
Industrial Engineering 1
Executive Management 1
Not done 2

Superintendent 1
Tooling and Engineering 1
Owner 1
Shop Foreman 1
Not done 1

Eastern Methods

Engineering 2
Tooling 1
Plant Manager 1

Mixed Methods

Production 1
Engineering 1
Methods Engineering 1

Northern California

Western Methods
Engineering 3
Production 2
Methods Engineering 1
Not done 8

Eastern Methods

Engineering 2
Tooling 1
Not done 1

Oregon

Western Methods
Tooling 2
Production 2
Engineering 2
Manager and Maintenance
Foreman 1
Not done 13

Mixed Methods

Not done 2

Western Washington

Western Methods
Engineering 9
Production 6
Foreman 3
Owner 2

Executive Management 2
Consultants 2
Production Control 1
Production and other
departments 1
Machine shop toolmaker 1
Tooling 1
Other departments 1
Not done 23

Eastern Methods

Production Control 1
Engineering 1
Production and Engineering 1
Shop Supervisor 1
Not done 4

Mixed Methods

Executive Management 1
Not done 2

Eastern Washington

Western Methods

Special staff 1
Not done 1

Mixed Methods

Shop Superintendent 1

Idaho

Western Methods

Tooling 3
Not done 1

Utah

(Origin not segregated)

Production 1
Other departments 1
Not done 7

Colorado

Western Methods

Engineering 3
Production 1
Not done 2

PRODUCTION CONTROL

ROUTING—(Preparing routing sheets showing how the work should progress through the plant)

Southern California
Western Methods
Production 9
Production Control 6
Superintendent 3
Office 1
Tooling and Industrial
Engineering 1
Methods Engineering 1
Purchasing 1
Owner 1
President 1
Not done 2
Eastern Methods
Production Control 2
Production 2
Plant Manager 1

ment of industrial engineering, Oregon State College; a student at University of Oregon, under the direction of C. F. Ziebarth, professor of business administration.

Washington. Consultants: Stephen Batori and Company; Edwards R. Fish; Kenneth E. Fosnes; Joseph B. Ward. University: Students in business administration, University of Washington, under the direction of

Albert N. Schrieber, assistant professor of management, College of Business Administration; R. O. Batdorf, field engineer (Spokane) State College of Washington, division of industrial services.

Idaho. Consultants: Robert L. Hamersley & Associates.

Utah. University: Students in management policies, College of Business, University of Utah, under the direc-



between Western and Eastern management

<i>Mixed Methods</i>		<i>Mixed Methods</i>		<i>Mixed Methods</i>		<i>Mixed Methods</i>	
Production Control.....	2	Research.....	1	Production Control.....	2	Executive Management and Salesmen.....	1
Production.....	1	Purchasing.....	1	Production.....	1	Production Planning.....	1
Superintendent.....	1	Superintendent.....	1	Superintendent.....	1	Stock Department, Sales and Factory Manager.....	1
Northern California		Consultants.....	1	Northern California		Production and Traffic Control.....	1
<i>Western Methods</i>		Other departments.....	1	<i>Western Methods</i>		Not done.....	6
Production Control.....	7	Not done.....	17	Production Control.....	10	<i>Eastern Methods</i>	
Production and Production Control.....	2	<i>Eastern Methods</i>		Production.....	8	Production.....	4
Engineering.....	2	Production Control.....	3	Engineering.....	2	Engineering.....	1
Production.....	1	Executive Management.....	1	Executive Management.....	1	Production Control.....	1
Superintendent.....	1	Engineering.....	1	Not done.....	1	Executive Management.....	1
Not done.....	9	Production.....	1	<i>Eastern Methods</i>		<i>Mixed Methods</i>	
<i>Eastern Methods</i>		Not done.....	1	Production Control.....	2	Production.....	2
Production Control.....	1	<i>Mixed Methods</i>		Production.....	1	Research.....	1
Production and Production Control.....	1	Production.....	2	Production and Production Control.....	1	Executive Management.....	1
Not done.....	2	Research.....	1	Eastern Washington		<i>Western Methods</i>	
Oregon		Executive Management.....	1	<i>Western Methods</i>		Production.....	1
<i>Western Methods</i>		Idaho		Production.....	14	<i>Mixed Methods</i>	
Production.....	8	<i>Western Methods</i>		Production Control.....	5	Production.....	2
Executive Management.....	3	Production.....	1	Engineering.....	2	Idaho	
Production Control.....	2	Shop Superintendent.....	1	Executive Management.....	2	<i>Western Methods</i>	
Industrial Engineering and Production.....	1	Utah		Not done.....	5	Production.....	3
Purchasing.....	1	<i>Western Methods</i>		<i>Mixed Methods</i>		Production Control.....	1
Not done.....	4	Production.....	3	Production.....	2	Utah	
Western Washington		Production Control.....	1	Western Washington		<i>Western Methods</i>	
<i>Western Methods</i>		Colorado		<i>Western Methods</i>		<i>Western Methods</i>	
Production Control.....	10	<i>Western Methods</i>		Production.....	20	Production.....	2
Production.....	9	(Origin not segregated)		Production Control.....	11	Production Control.....	2
Management.....	3	Production.....	7	Superintendent and General Manager.....	5	Production Planning.....	1
Office.....	3	Production Control.....	4	Engineering.....	4	Not done.....	1
Engineering.....	2	Engineering.....	1	Executive Management.....	4	Colorado	
Foreman.....	1	Methods Engineering.....	1	Sales.....	2	<i>Western Methods</i>	
Owner.....	1	Not done.....	2	Owner.....	2	Production.....	2
Production Control and Production.....	1	<i>Western Methods</i>		Supervisors.....	2	Production Control.....	2
Sales.....	1	Production Control.....	3	Order Department.....	1	Production Planning.....	1
Cost Accounting.....	1	Production.....	2	Office help.....	1	Utah	
Laboratory.....	1	Shipping, Production and Planning.....	1	Chief Expediter.....	1	<i>Western Methods</i>	
Supervisors.....	1	DISPATCHING—(Starting jobs through the plant)		SCHEDULING—(Determining when operations should be done in the plant)		Supervisors.....	1

DISPATCHING—(Starting jobs through the plant)

Southern California		Office.....		1
<i>Western Methods</i>		Department Heads.....		1
Production.....	10	<i>Eastern Methods</i>		
Production Control.....	6	Production.....	3	
Superintendent.....	4	Production Control.....	1	
Owner.....	2	Production and Production Control.....	1	
Planning Department.....	1	Production Planning.....	1	
Executive Management.....	1			
Methods Engineering.....	1			

Southern California		Supervisors.....		1
<i>Western Methods</i>		Office.....		1
Production.....	11	Owner.....		1
Production Control.....	5	<i>Eastern Methods</i>		
Superintendent.....	4	Production.....	2	
Scheduling.....	1	Production Control.....	1	
Exec. Management, Production and Prod. Control.....	1	Production and Production Control.....	1	
Methods Engineering.....	1	Production Planning.....	1	

tion of E. C. Lorentzen, head of the Department of Management, and El-Roy Nelson, director of the Bureau of Business and Economic Research.

Colorado. Consultants: R. W. Becker and Frank Pingree, Technical Service Company; Robert M. Razor. University: Students in business administration, University of Denver, under direction of Paul R. Merry, Bureau of Business and Social Research.

Replies from a larger number of plants could have been included in the survey if additional questionnaires had been handled entirely by mail, but lack of time and personnel made such procedure out of the question. As it was, publication of the results had to be postponed two months from the original occasion set, which was the January issue, the annual Review and Forecast Number.

It was originally intended to publish the complete report of the survey in one issue of *Western Industry*, but it was impossible to determine in advance how much space would be required, and consequently it was not realized that it would be necessary to divide it into two or more installments.

In the April issue we will report what the 211 plants do about controls and efficiency practices.

Next month — cost controls and efficiency

SCHEDULING

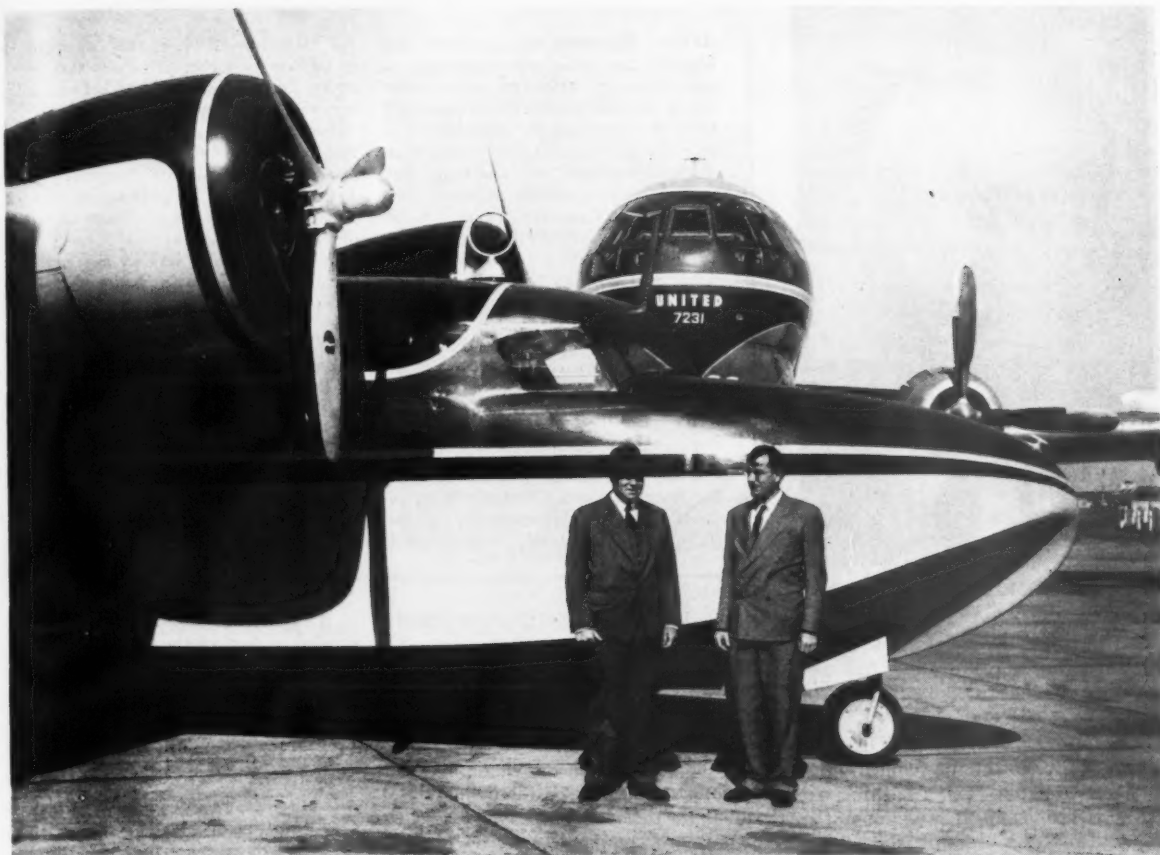
Continued from page 39

Production Manager.....	1	Production and Production Control.....	1
<i>Mixed Methods</i>		Order Department.....	1
Production Control.....	2	Office help.....	1
Production.....	1	Production and Traffic Control.....	1
Superintendent.....	1	Development.....	1
Northern California		Engineering and Supervisors.....	1
<i>Western Methods</i>		Stock Department, Sales and Factory Manager.....	1
Production Control.....	10	Other departments.....	4
Production.....	10	<i>Eastern Methods</i>	
Engineering.....	2	Production.....	3
Production Control and Production.....	1	Engineering.....	1
Executive Management.....	1	Production Control.....	1
Not done.....	1	Shop Superintendent.....	1
<i>Eastern Methods</i>		Executive Management.....	1
Production Control.....	2	<i>Mixed Methods</i>	
Production Control and Production.....	1	Production.....	3
Production.....	1	Executive Management.....	1
Oregon		Eastern Washington	
<i>Western Methods</i>		<i>Western Methods</i>	
Production.....	13	Production and Engineering.....	1
Production Control.....	3	Keyed to sales.....	1
Executive Management.....	2	<i>Mixed Methods</i>	
Engineering and Purchasing.....	1	Production.....	2
Production Control and Production.....	1	Idaho	
Sales.....	1	<i>Western Methods</i>	
Not done.....	4	Production.....	3
<i>Mixed Methods</i>		Production Control.....	1
Production.....	1	Utah	
Not done.....	1	(Origin not segregated)	
Western Washington		Production.....	6
<i>Western Methods</i>		Production Control.....	4
Production.....	20	Other departments.....	3
Production Control.....	11	Not done.....	1
Superintendent and General Manager.....	4	Colorado	
Executive Management.....	4	<i>Western Methods</i>	
Owner.....	2	Production Control.....	3
Sales.....	2	Production.....	1
Engineering.....	2	Production Planning.....	1
Supervisors.....	2	Not done.....	1
Dispatcher.....	1		

EXPEDITING—(Following up to see that production is proceeding according to plan)

Southern California		Production Control.....	5
<i>Western Methods</i>		Superintendent.....	4
Production.....	11	Shop Supervisor.....	1
		Production Control and	

Purchasing.....	1	Superintendent and General Manager.....	3
Methods Engineering.....	1	Production and Production Control.....	2
Supervisors.....	1	Owner.....	2
Office.....	1	Engineering, Sales and General Manager.....	2
Owner.....	1	Dispatcher.....	1
<i>Eastern Methods</i>		Sales.....	1
Production.....	2	Engineering.....	1
Production Manager.....	1	Sales and Production.....	1
Production and Production Control.....	1	Order Department.....	1
Production Planning.....	1	Office help.....	1
<i>Mixed Methods</i>		Development.....	1
Production.....	1	Traffic and Purchasing.....	1
Production Control.....	1	Supervisors.....	1
Production Control and Methods Engineer.....	1	<i>Eastern Methods</i>	
Superintendent.....	1	Production.....	4
Northern California		Engineering.....	1
<i>Western Methods</i>		Production Control.....	1
Production.....	7	Executive Management.....	1
Production and Production Control.....	5	<i>Mixed Methods</i>	
Production Control.....	3	Production.....	3
Engineering.....	2	Executive Management.....	1
Executive Management.....	2	Eastern Washington	
Not done.....	1	<i>Western Methods</i>	
<i>Eastern Methods</i>		Production.....	1
Production Control.....	2	<i>Mixed Methods</i>	
Production and Production Control.....	1	Production.....	2
Production.....	1	Idaho	
<i>Mixed methods</i>		<i>Western Methods</i>	
No reports.		Production.....	3
Oregon		Production Control.....	1
<i>Western Methods</i>		<i>Eastern Methods</i>	
Production.....	13	No reports.	
Executive Management.....	3	Utah	
Production Control.....	1	(Origin not segregated)	
Purchasing and Production Control.....	1	Production.....	6
Supervisors.....	1	Production Control.....	4
Production Control and Executive Management.....	1	Other departments.....	3
Sales.....	1	<i>Eastern Methods</i>	
Not done.....	4	No reports.	
<i>Mixed Methods</i>		Colorado	
Production.....	1	<i>Western Methods</i>	
Not done.....	1	Production Control.....	3
Western Washington		Production Planning.....	1
<i>Western Methods</i>		Not done.....	2
Production.....	14	<i>Eastern Methods</i>	
Production Control.....	9	No reports.	
Executive Management.....	5		



• Here are Frank W. Fuller, Jr. (left) and J. R. Grace (right) talking over the installation of VOR equipment in Mr. Fuller's plane, a Grumman Mallard, at United Air Lines' South San

Francisco overhaul base. This plane is used frequently by officials of W. P. Fuller and Co., San Francisco paint manufacturers, to transact business between home and branch offices.

New Electronic Navigation Aid To Control All Aerial Routes

IF YOU FLY or own an airplane that travels the nation's aerial highways, CAA says that you will soon have to equip your craft with new navigating instruments.

A new type of navigational aid for aircraft in flight, both private and commercial, is now being installed on the nation's airways. The program is well along with 314 of the grand total of 490 ground stations already operative and 249 completely commissioned as of December 1, last. In the Western half of the country, 175 ground stations are already installed and operating, and 149 of them are commissioned.

This radio aid is called VOR, an

By J. R. GRACE, P.E.

Radio Engineer, United Air Lines
South San Francisco, California

abbreviation of Very high frequency Omni directional Range. It will eventually obsolete and replace the present low frequency (200kc to 400kc) A-N type of radio range. This replacement will occur as soon as the CAA specifies.

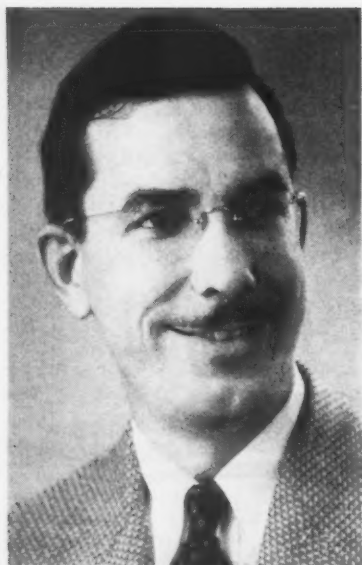
Main advantage of the VOR type of radio range is the ease with which a pilot can determine his position with respect to the station (he's tuned in on) at all times, assuming that he is within range of the station's usable signal strength.

This range is approximately 90 to

120 miles, depending upon altitude and terrain. It operates on a line-of-sight basis, like radar and television. It is not reflected by certain layers of atmosphere, as is standard radio.

Another advantage is the almost complete absence of static in the very high frequency band used (112,000kc to 118,000kc).

The VOR system lends itself admirably to new and proposed radio navigational aids such as automatic radio flight control, distance measuring systems, and flight path computing devices. The VOR system is inherently more accurate than the instruments currently used to portray the same information to the pilot.



J. R. GRACE

At the present time most of the domestic airlines are installing this airborne equipment to take advantage of the features of VOR.

Operation of VOR has been likened, theoretically, to the mechanical analogy of two lights. One, a flashing red light, is visible in all directions; the other, a rotating beam of white light, sweeps the horizon in a clockwise direction at a rate, for example, of one revolution per minute. During each revolution, as the rotating beam is pointing due North, the red light flashes once.

How VOR Works

Now picture yourself as an observer stationed due north of these lights. You will note that once a minute both lights will flash simultaneously. This condition is true only on a radial extending north as far as you can see the lights.

Now visualize yourself on a line extending due south of the lights. As the red light flashes, you begin to time the interval of the rotating beam and find that it is exactly 30 seconds. That condition, of course, is true only for observers due south of the lights.

Thus, if you time the difference between the two flashes, starting the time interval at the flash of the red light, you can accurately determine your exact azimuth position with respect to the light source.

This, fundamentally, is VOR reduced to simple understandable terms. Two separate types of radio signals are sent out by the ground station. One is radiated in all directions; the other sweeps the horizon at 1,800

AERIAL highways that criss-cross the United States today are indicated by a low frequency radio range to assist pilots in their travels. Tomorrow, all those airways will be indicated by a high frequency radio guide known as VOR, an electronic navigation aid that will obsolete this current system.

When that time arrives (and it's not too far off) all aircraft, private or otherwise that fly the designated airways, will have to be equipped with VOR instruments in order to (1) comply with CAA regulations and (2) know where they are as they fly about.

This is an explanation of what VOR is, what instruments and equipment you will need to fly it, and how to use them.

J. R. Grace, author of this article, a Radio Engineer at United Airlines' So. San Francisco Overhaul Base, is vested with the responsibility of installing this equipment in all United

Air Lines planes. He is also consulted by private industrial firms who seek to equip their planes with VOR before the last-minute-rush sets in.

He has had 18 years' experience in the radio field with United, having started in Chicago with National Air Transport, one of the predecessor companies that formed the nucleus of today's United Air Lines.

With N.A.T. he was in charge of ground station maintenance. With United he has been in charge of the aircraft radio service shops in both Portland and Seattle. He was assistant foreman at United's San Francisco overhaul base until 1945, when he entered their engineering department.

He is a registered Professional Engineer, charter member and present secretary of the Peninsula chapter of the California Society of Professional Engineers, as well as a Senior Member of IRE.

r.p.m. The airplane receiver measures the time interval electronically, it computes the azimuth bearing automatically, and it continuously presents that information on an indicator in the cockpit.

From each of the RF carriers a 30 cycle signal appears after demodulation in the receiver. These two 30 cycle signals are compared and the phase shift between the two is read directly as magnetic bearing "to" or "from" the VOR station.

Airborne Equipment

VOR equipment carried in the aircraft is complicated technically, but the actual operation of it is quite simple.

Besides the receiver and its frequency control unit, two instruments are essential. These are (1) on Omni Bearing Selector and (2) a Flight Path Deviation Indicator. Both these instruments are provided within reach of the pilot.

The OBS, housed in a standard three-inch instrument case, is essentially a mechanical device. The number corresponding to the magnetic bearing of the VOR station is selected by a small knurled knob just to the right of the instrument's window. By rotating this knob, any number from 0 to 360 may be selected, representing degrees on the magnetic compass.

A small switch handle to the left of the instrument's window moves a shutter across the window and produces instantly a set of numbers giving the reciprocal setting. (e.g., if 270° appears in the window, moving the shutter will change that number to 90°. (270 — 180 = 90)).

A To-From indicator is also included as part of the OBS instrument.

The only other instrument in presenting VOR information to the pilot is the Flight Path Deviation Indicator (FPDI), commonly known as the "cross-pointer."

This instrument is equipped with two pointers or needles, operated by separate very sensitive meter movements. The VOR receiver actuates the vertical needle of this cross pointer. The vertical needle is the only one which concerns pilots whose planes are not equipped with an Instrument Landing System.

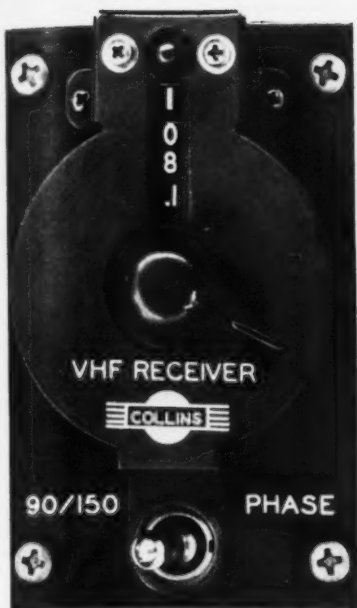
(The horizontal needle is actuated by the glide slope receiver, which is also a part of the Instrument Landing System, used mostly on commercial planes. On an instrument radio approach to a landing runway, the same VOR receiver is used to indicate right-left turns, while the Glide Slope receiver indicates the approach angle on the FPDI horizontal needle.)

How to Use VOR

These instruments and VOR equipment can be used in either of two ways: you can determine your bearing from any known VOR ground station, or you can determine your location in the air in the event that you are lost.

When using VOR, you, as a pilot, will no longer have to sit in the cockpit and continually wear a pair of earphones to listen for the "dit-dah" and "dah-dit" to maintain your "on the beam" course. This new system is visual. You will look instead of listen.

However, when you are tuned in on a VOR ground station, the call letters



• This is Collins VOR receiver frequency selector. Under large disc is a knurled knob, the one megacycle switch. Lever shown at 4 o'clock is one-tenth megacycle switch. United has standardized on Collins instruments although many others are manufactured for small planes.



• And this is the receiver itself, which is controlled by the selector on the left. This receiver, Type 51R, has 27 tubes and 280 crystal control channels. For small plane use such a large instrument is not necessary, if you have no need for radio-controlled instrument landing facilities.

ber of degrees "to" or "from" North, with respect to the station you are flying.

Having thus obtained your bearing with respect to that VOR ground station, you may desire to fly toward the station. You have only to turn in that direction and then steer slightly right or left, so as to keep the FPD vertical needle centered. If you do that, you will fly a straight course to and over the station, regardless of cross winds.

To Plot Your Location

But suppose that you are flying about upstairs, and have lost your bearings. How are you going to plot your location?

It's almost just as simple. With the frequency selector, start tuning in the stations one by one until the "off" flag on the FPD vertical needle is centered. Immediately you know that you are on a VOR beam and within range of that station. By reading the frequency selector indication or listening to the call letters you can determine what that station is. (For benefit of those in strange territory, the CAA puts out a list of frequencies and call letters for all VOR stations.)

After the "off" flag on the FPD disappears, start rotating the knurled knob on the OBS until the vertical needle on the FPD is centered. Then read your magnetic compass bearing directly in relation to the station tuned in. It's as simple as that.

Several radio companies are either making or planning to make VOR aircraft components expressly for the small plane market.

are broadcast intermittently, for your guide. Some stations broadcast these call letters by code, and others by voice. Eventually, all call letters will be broadcast by voice.

Then you have two means of identifying a ground station: (1) call letters, and (2) frequency selector indication in megacycles.

Omni direction Range means that you are always on an aerial track. In fact, you will always have two tracks available on which to locate your bearings. One is identified in degrees "to" North, and the other (its reciprocal) in degrees "from" north, as shown on the OBS instrument.

Think of the VOR ground station as the hub of a wheel that has 360 spokes, one for each degree of the compass. Each of these 360 spokes is numbered on your OBS instrument. You know which spoke you are flying along or across by merely looking at the numbers in the window of that instrument, when the vertical needle of your FPD instrument is centered and the "off" flag out of sight.

To Determine Your Bearing

To determine your bearing from any known VOR ground station:

1. Tune in the station by selecting its frequency on the receiver selector; (the flag that covers the bottom of the vertical needle will flop out of sight,

indicating that you're tuned in).

2. Rotate the knurled knob on the Omni Bearing Selector until the vertical needle of the Flight Path Deviation Indicator is centered. As you rotate the knob, the figures in the instrument's window will change. After the needle is centered, the figures appearing in the window represent the num-

• These two instruments pictured below are, left to right, the Flight Path Deviation Indicator (FPDI) and the Omni Bearing Selector (OBS). They are regular three-inch dial instruments, mounted on your instrument panel within easy visibility. The Flight Path Deviation Indicator, otherwise known as "cross pointer", tells you if you are "on the beam". Then the Magnetic Bearing Selector, properly adjusted, tells you just what "beam" you

are on. Instruments and equipment pictured on this page are all you require for flying on VOR. The only exception is the receiver instrument shown above, which is used on United's liners. You will not need an instrument with that capacity (or that cost), because you probably will not need the extra radio-controlled equipment that such a large receiver can handle, in addition to its duty as a very high frequency receiver for VOR.



Moving Things on the Movie Lot Is a Man-Size Operation

It should be mechanized

By TRACY S. HOLMES

Staff Engineer
Motion Picture Research Council
Hollywood, California

STRIPPED of its dark glasses, Hollywood is only the production end of the motion picture business. And in the production of pictures, as in the production of anything else commercial, Hollywood has headaches. Materials handling headaches, in particular, that are peculiar to that industry.

After a story has been chosen, the cast selected, and sets designed, actual movement of materials begins. An average picture will require about twelve different sets. And these sets will vary in size from a simple three-sided room to an elaborate affair of many rooms covering practically the entire area of the sound stage.

Sets are generally completely broken down into wall sections and transported to the sound stage, where they are erected again on the floor.

Normally, some ground covering is required around the set, such as dirt, grass, rocks, snow, etc. Then trees and

shrubbery are placed around the set or, if the action is to take place inside the set, trees and shrubbery are placed outside the windows and are backed up by painted or photographic backdrops.

Next, the set is rigged with lights. Arc lights and large incandescents are hoisted to scaffolding hung from the grid, or roof, of the sound stage. These lights are generally positioned all around the top of the set walls, and are spaced about three feet apart.

Then the props, which include furniture, lighting fixtures, rugs, etc., are brought in and placed in the set.

When the company moves in for shooting, a large assortment of cameras, camera dollies, sound booms, mixers, flood lights, chairs, dressing rooms, etc., are moved in. Shooting on a particular set generally requires three or four days, and represents perhaps ten minutes of picture in your theater.

• This set requires about a dozen crew members, three stars (Doris Day, Lauren Bacall and Kirk Douglas) and a roomful of properties. After shooting, an order is given to strike the set and workmen converge upon properties and "muscle" them elsewhere.



IN the production of film, the motion picture industry handles a great variety and quantity of materials. Square feet and costs of them run into super-astronomical figures. And so does the cost of moving them about. This article, written by a man behind the scenes at the movies, points up the current need for better materials handling in that industry, which seems to be virgin territory for materials handling boys who can get past the front desk to do business.

Labor in the studios, which is highly unionized, poses quite a problem in itself. Each union has well-defined jurisdiction over certain materials and the movement of materials from one place to another.

For instance, the carpenters will take wood from storage rack to mill, where they fabricate it into sets. Sets are then transported from mill to stage by the labor department. At the stage door they are taken in hand by another group known as set erectors. After shooting is completed, sets are torn down and removed to the scene dock by the grip department. And in this series of movements (all centering around the pieces of wood a carpenter took out of a storage rack at the mill) six different kinds of equipment are involved.

If materials handling engineers were to go into a studio to attempt to lay out a chart of the flow of materials, I am afraid they would find it an impossible task.

Materials entering the lot will follow usual channels to a receiving depot or to a storage yard, but from there on they may go any place on the lot. From the mill, set components may flow to one or several of some 22 stages or be shipped to Miami for a location picture.

The problem varies from studio to studio, because of individual layout, topography of the lot, architecture of the mill and stages, and different types of set construction used.

One studio can move into their mill with a mobile crane, pick up a completed set, transport it to the stage and set it down. At another studio this is not possible because of the narrowness of their streets and the small size of their stage doors. Similarly, each of the other studios has its unique problems.

Even the set walls vary in size from set to set, and from picture to picture. Practically no two sets are ever alike. Because of this, there are as many

methods of handling sets in Hollywood as there are studios.

In order to give you some idea of the quantities of materials involved in the motion picture industry, here are some conservative figures of a few materials used by the industry in a normal year:

40,000,000 board feet of lumber
4,000,000 square feet of plywood
2,000,000 square feet of Masonite
2,000,000 square feet of Celotex
2,000,000 square feet of textiles for backdrops, cycloramas, etc.
3,000 tons of plaster
15 tons of fiberglass
50 tons of natural fibers.

All these materials are used in set construction. There are great quantities of other materials used by other departments, in similar figures.

In 1948, total production cost in Hollywood was \$450,000,000. That year's bill for supplies, including maintenance costs, was \$63,000,000.

Four hundred thirty-two full-length pictures were produced in Hollywood during that year, which gives an average production cost per feature picture of \$1,028,000.

In producing these pictures, 276 different industries, arts, and professions were used.

Now—in order to give you an idea of the magnitude of the transportation departments in Hollywood studios, here are some figures involving only one of the larger studios:

This studio has at present 221 powered units, none of which is more than five years old. It has 115 trailers of all types, making a total of 336 pieces of equipment.

Besides these items, which are operated by the transportation department, there are hundreds of smaller pieces of equipment mounted on wheels and casters as used by the various departments in the studio.

Operating expenses for the year 1948, in that studio transportation department alone, amounted to \$1,300,000. \$640,000 of that amount went for drivers' salaries. Maintenance and upkeep, insurance, gasoline, and the purchase of equipment took the remainder.

When these figures are multiplied by ten, it can readily be realized that the phase of transportation and materials handling for the Hollywood studios is no small matter.

Prior to the establishment of Motion Picture Research Council, there had been no attempt to standardize equipment used by the studios. Only those items that are supplied by outside manufacturers are similar among various studios.



• Here is a good example of "built-in" materials handling equipment. Camera, over players, moves about freely. Margalo Gilman Morgan, Dennis Morgan, Ginger Rogers at head of table. Without mechanized equipment scene would be highly expensive.

Standardizing of studio equipment is a gradual process. Some progress has been made along this line, and we are continuing to work on the problem.

Much of the required studio equipment is special. That in itself is a poor situation, since quantities involved are not large. Hence, since the studios have in the past been unable to obtain desired equipment, they have been forced to design and manufacture it themselves.

This is not the fault of local manufacturing or of the studios themselves, but rather it is an awkward situation that exists; studios have no alternative but to make it themselves.

Manufacturers and distributors of materials-handling equipment can help the motion picture industry in two ways. First, by contacting the Research Council with suggestions for utilizing mechanized materials-handling equipment for motion picture work; and second, by making available the right equipment for the job we have to do. Your knowledge of your equipment, coupled with your knowledge of our problems should lead to constructive results.

On my rounds of the studios, I have noticed the need for many pieces of

equipment; they are:

1. Some simple means of transporting the workmen around the studio lot;
2. A better method of transporting and moving set walls;
3. An efficient and inexpensive system of trash collection and disposal;
4. A good, rapid method of prop and furniture handling in the warehouse and on the sound stage;
5. An efficient potted tree mover;
6. A combination crane and ladder to support trees while tying-off to the grid;
7. Better means of transporting lights to and from stages;
8. System of hoisting lights to scaffold;
9. Hydraulic loading platforms;
10. A universal wall jack for wild walls.

Men who are in the business of selling materials handling equipment can see at a glance, as they walk through a studio, things being moved by inadequate equipment. Point them out to department heads. Suggest better and easier means of doing those tasks. Studio management is not averse to listening to reason—particularly when it is to their financial advantage.

Who Decides on Your Advertising Plans and Budgets? By What Methods?

Northern California pilot survey gives you a chance to compare your methods with other firms. It also shows readership habits and business association activity of management men.

YOUR advertising dollars will deliver full power and value to you only if they are put in the proper places and in proper amounts. How to decide on the proper places to put them, and how many of them to put there, seems to be a bigger problem than management itself realizes.

Determining your industrial advertising budget is a complex project, dependent upon a number of factors taken into weighted consideration. Among these factors are:

1. Evaluation of your market potential;
2. Evaluating the extent of your distribution;
3. Evaluating your competitive position;
4. Consideration of possibilities for developing new markets and new product uses;
5. Evaluating the effectiveness of your sales efforts.

Apparently, though, many companies determine their industrial advertising budgets without weighted consideration of these important factors, according to a pilot study conducted last month by the Northern California Industrial Advertisers Association among some of its members.

Hit or Miss

Direct result of an improperly prepared advertising budget is careless spending of advertising dollars, with too large an amount of them going to the wrong places, or too small an amount going to the right places.

Of the firms studied in this survey, only five per cent based their budgets on an "estimated percentage of sales for the coming year," arriving at such percentage through a calculable appraisal of their market. Another ten per cent apply market analysis to budget determination.

However, the largest group in the

HOW IS IT DECIDED?

Question 1: On what basis is industrial advertising budget developed?

a. Arbitrary Figure	7
b. Percentage of Sales Volume ..	6
c. Use of Market Analysis	2
d. Percentage of Sales and Market Analysis	2
e. First three (a, b and c)	2
f. Estimated Percentage of Sales for Coming Year	1
Total Replies	20

pilot study (35%) determine budgets by admittedly arbitrary decisions, which is a poor way of putting advertising dollars to work, at a profit.

Thirty per cent base their budgets on a percentage of current sales volume. The balance (20%) use a combination of methods without applying

clearly defined policies. The special planning and budgeting experience of advertising agencies is not as widely used as it should be; in only four of the 20 cases studied in this survey do advertising agencies initiate industrial advertising plans, and in only three cases do agencies develop tentative budgets.

Sales Managers Read More

Another phase of the pilot study covered the readership habits of company executives with respect to management publications and industrial and advertising trade papers.

These findings showed that sales managers have the highest degree of readership interest in management and industrial trade publications. But they also touched on one of the sore points in industrial management: namely, the all-too-often subordinate position occupied by the industrial advertising manager.

WHO DECIDES?

Question 2: Who initiates industrial advertising plans?

Question 3: Who approves overall advertising plans?

Question 4: Who develops tentative budget?

Question 5: Who approves budget?

Question 6: Who approves media selection?

Question 7: Who okeys copy?

(Replies total more than 20 because more than one company executive has a voice in any of these problems)

Number Respond.	Questions No.:	2	3	4	5	6	7
15	President	3	13	1	12	7	9
3	Vice President .....	...	3	...	4	...	...
7	General Manager .....	...	3	2	5	4	3
15	Sales Manager	11	5	7	3	9	12
14	Advertising Manager	8	3	10	3	8	9
3	Treasurer	1	1	1	3	1	1
2	Chief Engineer .....	...	...	...	...	...	...
...	Advertising Agency	4	...	3	...	...	...
59		27	28	24	30	29	36

WHO GOES WHERE? WHO READS WHAT?

Question 8:
In what business or trade associations is each active?

Question 9:
How many such association conventions has each attended in last 12 months?

Question 10:
How many business and trade papers does each read regularly?

No. Respond		Number of		Number of		Management Publications		Industrial Trade papers		Advertising Trade papers	
		Individuals	Assoc'ns	Individuals	Conventions	Indv.	Papers	Indv.	Papers	Indv.	Papers
15	President	13	31	8	20	4	11	8	22	1	1
3	Vice-President	2	8	3	11	1	1	2	7	1	3
7	General Manager	6	7	5	6	4	13	8	35	1	3
15	Sales Manager	10	13	9	21	8	19	10	46	5	11
14	Advertising Manager	4	6	3	7	3	3	5	17	5	13
3	Treasurer	—	—	—	—	—	—	1	3	—	—
2	Chief Engineer	2	2	1	1	—	—	3	9	—	—
—		—	—	—	—	—	—	—	—	—	—
59		37	67	29	66	20	47	37	139	13	31

Cause or Effect?

Of 14 advertising managers, only five read advertising trade papers regularly, averaging 2.6 out of each six magazines mentioned.

A Possible Comparison

Possibly advertising managers occupy subordinate positions because they fail to keep abreast of advertising trends and of progress in the industries to which their companies advertise. Or the figures may indicate that management here doesn't consider advertising of sufficient worth to attract advertising managers of high caliber. In either event, some quiet thinking on the subject is indicated for both advertising men and their bosses.

Study Planned to Help

This pilot study was the initial task of the association's "Management Relations" project committee, under chairmanship of George C. McNutt.

The study was undertaken by the Northern California Industrial Advertisers Association to give industrial executives a better insight into who's who in management insofar as advertising problems are concerned, and to determine what channels might be used to encourage industry to use advertising more effectively in today's competitive selling.

Several other studies devoted to specific management functions in relation to different phases of industrial marketing will follow. The association is a chapter of the National Industrial Advertisers Association, an organization with over 3,000 members among manufacturing companies, advertising agencies, business publications and research organizations.

Results of Survey

Results from this pilot survey were

so interesting and worthwhile that other industrial advertising groups have been asked to make similar studies. Already the Cleveland and Milwaukee Chapters of the National Industrial Advertisers Association have begun surveys of their membership. It is expected that at least two other chapters will join them, thus insuring a representative national cross-section.

Present Plans

Present plans call for a full report on the surveys at the 1950 annual conference of N.I.A.A. to be held in Los Angeles on June 29, 30, and July 1.

The pilot survey shown on these two pages naturally raises the question "How do Western companies compare with the remainder of the U. S.?"

Until survey reports are received from other chapters, it won't be possible to make comparisons on all points. However, the 1949 national survey of industrial advertising budgets, prepared by N.I.A.A. does show some significant similarities and differences. Here they are, as reported and evaluated by Mr. McNutt, chairman of N.C.I.A.A.'s Management Relations project:

How Does the West Compare?

"Of the Northern California firms, 35% reporting compute advertising budgets on an arbitrary basis, while nationally, 37% do so. Another 29% nationally report revising the budget up or down on the basis of the previous year's experience, which is the next thing akin to an arbitrary basis.

"Nationally, 22% compute budgets on a fixed percentage of sales; here 30% do so.

"Nationally, 30% use sales analysis to arrive at budgets; here, only 10%.

"The trend nationally is more and more toward the use of market analysis

or what is sometimes known as the know-your-objectives-and-budget-accordingly method of computing advertising appropriations.

Way the West Lags

"Possibly the West has lagged behind in use of market analysis because Western growth has gotten so far ahead of official figures. Nevertheless, most companies, Western or otherwise, do establish sales quotas. Advertising budgets naturally should bear a direct relation to sales quotas, since the prime purpose of industrial advertising is to make easier the selling job of the sales organization.

This Seems Reasonable

"Thus, it would seem that a sound policy would be to base the advertising budget on a per cent of estimated sales.

"No separate figures are available for Western industries, but nationally here's the answer to "What per cent of dollar sales income is spent on advertising?"

Year	Companies Reporting	Average Advertising to Sales Dollar
1939 actual	167	2.5%
1948 actual	272	1.9%
1949 budget	269	2.1%

"Actually, Western industrial firms probably should be spending above the national average, because so many more Pacific Coast companies are in the pioneering stage of selling.

Cost of Advertising

"It naturally costs more to gain customer acceptance, than it does to hold it. Aggressive advertising, as more and more Western firms are discovering, makes it easier for Western salesmen and products to get into markets heretofore dominated by Eastern and Midwestern companies.

Hydraulic Power Packs a Punch To K-O Your Plant Problems

It's easy to install, easy to use, and does a multitude of things that eliminate expensive manhours and muscle

ADAPTABILITY, efficiency, and flexibility are three beneficial characteristics that are increasingly influencing the choice of hydraulically operated equipment for industrial power transmission.

More efficient pumps have been developed to work at higher volumes and higher pressures. Wider selection of high pressure valves and larger horsepower fluid motors have been designed to open many new fields of application.

Mechanical Principles

Mechanics of hydraulic pressure is based on the same formula as that of air pressure: Force equals Pressure times Area. Force is expressed in pounds; Pressure is expressed in pound per square inch; Area is expressed in square inches.

For example; if the operating pressure of a hydraulic system is 90 p.s.i. and the area of the piston head against which this pressure is exerted is 10 square inches, then the force generated against the piston head would be 900 pounds. Working force of this arrangement, then, would be 900 pounds, minus whatever force is used to overcome the friction of the piston packing.

Application of Hydraulics

However, application of oil pressure differs in many ways from air pressure installations.

Oil as a power transmission medium is ideal. The same oil which transmits power is also a high grade lubricant for the equipment used. Hydraulic oil for use in such equipment is specially processed; it is a high quality oil with additives. This helps prevent rust and oxidation and maintains a constant viscosity over wide ranges of temperature. Hydraulic oil can be operated for long periods of time at temperatures as high as 150° F., or more.

Hydraulic equipment is manufactured to very close tolerances. Great care must be exercised to keep hydraulic oil clean. Filters should be pro-

By **HERB VICKERY**

General Manager, The Rucker Company
Emeryville, California

This is the second in a series of three articles. The first one, published last month, dealt with the application of pneumatic cylinders to industry. The third one, to be published next month, will deal with the use of fluid power transmission systems in industry.

Since 1944, the author of this series has been general manager of the Rucker Company, engineering specialists in the design, manufacture, and application of pneumatic and hydraulic systems in all types of industry.

vided. These prevent foreign matter from getting into the system and also filter out metal and carbon particles which form in the oil. Failure to do this leads to sticking valves and pumps and increased maintenance cost. Use of improper oil damages hydraulic



HERB VICKERY

equipment and causes improper operation and shorter life.

Hydraulic Pumps

Pumps used in generating hydraulic oil pressure are usually one of three types: (1) gear pump, which can be used for pressures up to 1,000 p.s.i.; (2) vane type pump which can be used for pressures up to 2,000 or 2,500 p.s.i.; (3) piston type pump which can be used for pressures up to 5,000 or 10,000 p.s.i.

Centrifugal pumps are seldom used in the average industrial hydraulic application, since they are not designed to develop high pressures. Multi-stage centrifugal pumps can develop sufficiently high pressures for hydraulic units, but the cost of these is usually prohibitive.

Recent Developments

Development in recent years of high volume, high pressure vane and piston type pumps at nominal prices has out-moded less efficient gear pumps to a large extent. These new pumps make possible hydraulic installations for you which previously were not practical either from a mechanical or an economic point of view. Vane pumps are now available to deliver 120 g.p.m. of oil at 1,500 p.s.i. Piston pumps are now obtainable which will deliver 35 g.p.m. at over 5,000 p.s.i. A good pump is essential for the proper operation of your system because it is the source of hydraulic power.

How to Avoid Troubles

Troubles are often caused by one of three common faults: (1) improper installation and alignment of the pump; (2) foreign material in the oil; or (3) cavitation.

If a pump is improperly aligned, it is quite possible for the bearings to wear sufficiently to damage the pump itself.

Foreign material in the oil supply

or the use of improper oil will ruin a pump rapidly. Some oils tend to form carbon very rapidly. Others, under the influence of heat, create a varnish which adheres to working parts and eventually fouls up the equipment.

Too much stress cannot be laid on the use of a proper hydraulic oil.

Cavitation occurs when a pump is trying to suck oil into the suction port faster than the oil can flow in. This creates a partial vacuum and causes the pump to hammer or scream. Such a condition upsets the hydraulic balance of the pump and results in excessive wear. Pumps can be ruined in a few hours of operation in this manner.

Things to Know

To prevent this condition, your suction lines should be as short and with as few bends as possible. Ample large suction lines to assure a sufficient flow of oil at low velocity are a great help in this respect. If a pump has to suck oil for a long distance or for a considerable height, its efficiency will be reduced. Where a pump is creating such a suction, any small leak in the suction line will allow air to enter the system. This air forms in pockets and causes erratic operation, chattering and hammering in the system.

In cold climates oil becomes very thick and viscous. It will not flow freely into the pump or through a suction type filter. Where this condition prevails, a filter should be piped into the system in such a way that it can be bypassed. Provision should be made

for maintaining the oil at a sufficiently low viscosity so that it will flow properly through your system. Failure to do this may cause serious damage.

Hydraulic Valves

Variety and design of hydraulic valves is so extensive that they have become a study in themselves. Valves are available as standard stock items which will provide practically any type of control or operation desired. Generally speaking, valves are either pressure control valves, speed or flow control valves or direction control valves. Relief, unloading, pressure reducing, and sequence valves are all pressure control valves of one type or another. Compensator type flow control valves, flow control valves with integral checks, and needle valves fall in the speed or flow control groups. Four-way valves and check valves fall in the directional control group. Valves may be hand, foot, lever, stem, pilot or electrically operated. Care should be given in selecting the proper group of valves to perform the particular function desired. The valves in your circuit are its very heart and good valves are absolutely necessary if proper trouble-free operation is to be obtained.

Variety of Circuits

It is impossible to describe the variety of hydraulic circuits. You can plan systems to accomplish almost any operation—pushing, pulling, lifting, lowering, rotating, indexing or reciprocating. Usually the simplest circuit

with the fewest valves and equipment required is the best. The fewer the working parts, the less the possibility of maintenance trouble.

Proper Heat Transfer

One point commonly overlooked in designing hydraulic circuits is the heat factor. When oil is continually passed through a relief valve under pressure, the energy stored in the oil is transferred to heat. This heat consumes excessive power and creates a problem of dissipation.

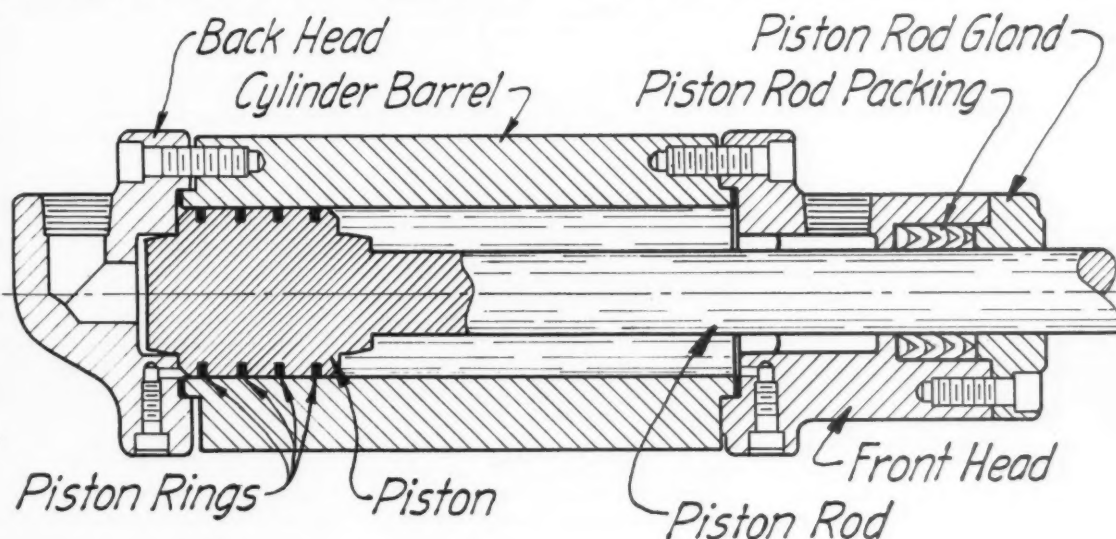
Many times this problem can be overcome by the installation of unloading valves and open center valves in the circuit. Variable volume pumps also tend to overcome this difficulty. Or, proper provision can be made either in the way of a large oil tank or of some type of heat exchanger. If heat is not controlled, either (1) hydraulic oil will tend to break down or (2) hydraulic units must operate at temperatures above that for which they were designed. Expensive trouble can develop.

Another common problem in the installation of hydraulic circuits is the use of pipe or tubing which is too small to carry the required volume of oil without creating a high oil velocity and consequent friction losses. Such small piping should never be used. Right angle bends in piping should be avoided wherever possible for the same reasons.

Great care should be taken to see that all pipe used is thoroughly

• This schematic cross-sectional view of a typical hydraulic cylinder shows that it differs from a pneumatic cylinder mainly in type of piston, piston rings, and packing gland. Connections to the operating valves are screwed into front and back heads.

Fundamental formula to figure hydraulic and pneumatic force is the same, and allowance must be made for the piston rod area when calculating return power on a double-acting unit. With hydraulic power you can perform almost any operation.



HYDRAULIC CYLINDER

cleaned and that all burrs are reamed after the pipe is threaded. Often pipe compound is allowed to get into the fluid stream with the resultant sticking and mis-operation of valves. Greater care in the cutting of threads and a little less use of pipe compound usually result in a much better job.

Hydraulic Cylinders

Standard hydraulic cylinders usually come in three pressure series, the first up to 500 p.s.i., the next up to 1,500 p.s.i., the third up to 3,000 p.s.i. Over 3,000 p.s.i., cylinders are usually specially designed for the job. They are available in various bores and strokes and with all types of mounting arrangements and rod diameters. Selection of the size and type of cylinder will depend on the work to be performed. Consideration should be given to the best method of mounting and the forces involved. For fast operation of hydraulic cylinders, oversize ports are necessary to allow flow of a sufficient volume of oil to obtain the desired speed. High pressure operation is usually more efficient than low pressure and permits using much smaller cylinders. Resultant savings in weight, space and installation time can be considerable.

Cylinder Construction

Construction and materials used in hydraulic cylinders are very important from the standpoint of long life and dependability. Hydraulic cylinders should be properly honed and provided with high pressure packings of proper quality designed to fit their working pressure. 500 p.s.i. series use leather or plastic packings. 1,500 p.s.i. cylinders use leather, plastic, or metal rings. 3,000 p.s.i. cylinders use plastic or metal packings. In recent years considerable development has been done in new types of synthetic packing which are suitable for high pressures. Metal rings last indefinitely and are subject to a minimum of maintenance.

Cylinder Uses

Single acting lift cylinders, used for elevating or stacking operations, can be operated either on an air-oil system or on a full hydraulic system. They are usually designed for low pressure operation of not over 125 to 150 p.s.i. This type of cylinder is usually gravity returned and generally the ram is used as a structural support for the elevator or lift platform.

Single acting cylinders for hydraulic presses, such as those used for pressing plywood, laminating, etc., operate at pressures up to 5,000 p.s.i. or higher.



• This hydraulic cylinder is used in making irrigation pipe, at the plant of W. R. Ames Company, San Francisco. The operator's left hand is on the hydraulic valve that controls a special vice used to clamp the pipe in place accurately. The operator's right hand is placed on the hydraulic control valve that operates the cylinder directly behind and parallel to it. This cylinder forces the face-plate out and jams the coupling (already coated with sealing compound) into the enlarged neck of the irrigation pipe. A flick of the hydraulic valve control lever quickly returns the piston to its original position, ready for a repeat operation. Then the valve controlled by the operator's left hand releases the holding jig and the completed pipe may then be removed. This is a very simple installation and use, but without hydraulic power to take care of such jobs that require plenty of "bull force", the cost of irrigation pipe would be much higher.

These cylinders are usually cast steel or similar material with meehanite rams or rams of some material which is a good mating material for the cylinder itself. Hydraulic systems used on such presses are generally of the high-low type. The press is closed on low pressure and automatically switches over to high pressure when a certain maximum low pressure is reached.

Stop-Look-Think

Variations of the cylinders and circuits are made to fit the required operations. You will do well to consult hydraulic specialists when you con-

template installation of hydraulic cylinders. Almost always the cost of a specialist's services are more than offset by the perfection of the unit he designs for your plant. Low cost, high efficiency hydraulic power is available to you. Look around you—there are many places where hydraulic power will do your job at a much lower per unit cost.

About Fluid Motors

In the next and final installment of this series we shall discuss the application of constant displacement fluid motors in West Coast industry.

TECHNICAL SHORTS

Effectiveness of Red Lead Investigated

"Red lead appears to be outstanding" for enclosed structural members in steel housing construction, according to a recent study by H. A. Pray and R. S. Peoples of the Battelle Memorial Institute for the American Iron and Steel Institute. Some 34 kinds of paint systems were studied during the testing.

Experiments with the many well-known and established paint coatings included: (1) continuous immersion in water; (2) contact with air at high humidity; (3) continuous condensation; (4) alternate wet-dry conditions, and (5) continuous contact with insulation in the presence of water. The tests were intended to simulate both severe and moderate conditions of service and "should form a basis for valid comparisons between the effectiveness of the coating systems studied."

"Sirup Filling" For Frozen Apples

A new prefreezing treatment called "Sirup filling," for apple slices preserved by freezing, is reported by the Western Regional Research Laboratory of the U. S. Department of Agriculture. This method, which has been developed on a laboratory scale, yields a product with more desirable flavor and texture and less drip than are commonly obtained with commercially used methods for the prevention of browning of apple slices, the laboratory reports.

Sirup filling consists of removal of tissue gases from apple slices by the use of a vacuum, followed by partial replacement of voids with a sugar sirup containing about 40 per cent sucrose and a small amount of antioxidant. The operation is carried out by immersing sliced apples in the sirup in a vacuum chamber, pulling a vacuum of about 29 inches of mercury for four to five minutes, releasing the vacuum with air, and allowing the sirup to penetrate the slices for a few minutes. The slices are then removed, drained, packaged, and frozen in the usual manner. This is only one of many projects at the laboratory in Albany, Calif.

Bread Handling Becomes Mechanized

Proven time-saving principles for handling materials in industry have been applied for the first time to the baking industry in the handling of bread.

So said William H. Coleman, president of Coleman-Pettersen Corp., in disclosing details of the unique new "traycar system" for handling of bread in the baking industry.

Before its introduction by the Wire and Metal Manufacturing Co., division of Coleman-Pettersen Corp., Los Angeles and Cleveland, the system has been successfully tested for one year by various Western bakeries who have acute super-market delivery problems.

The "traycar system," employing accepted principles of materials handling that industrial engineers call the "unit load system," employs three specially-designed units to reduce bread-handling time to a minimum. A new metal-mesh tray replaces the wooden trays presently used by bakeries to carry bread; a new collapsible wheeled cart transports five trays at once; and a new compact, folding storage rack stores eight trays in a minimum of space.

This system cuts bread-handling costs 25 per cent.

Handling time is reduced with the new system because loaves of bread are placed directly upon metal trays at wrapping tables at the bakery, and moved from the tables as a unit, never leaving the trays until sold. Trays are placed upon the special cart and wheeled to the waiting delivery truck. At destination the trays are loaded onto the carts and wheeled into the market where they are unloaded into storage racks.

Trays are sanitary, durable, light in weight, and attractive. Original cost of trays is no higher than wooden units they replace, and metal trays last much longer. Storage racks are compact, and permit a very large quantity of bread to be stored in a minimum of space. The wheeled carts are light, and maneuverable. Because they are quickly collapsed, they can be stored in a small amount of space in the delivery truck.

A good application of materials handling principles to the baking business.

How to Open Stuck Boiler Doors

A boiler door is stuck fast so two men give a big heave, says *Shipboard Safety*. "A tight dog causes a man to swing on it to get it loose. A line or chain is tangled so a man leans back to heave on it. Or maybe it is a frozen nut that requires a terrific jerk to start it.

"If the final heave doesn't have the desired effect, the next step is to get some tool which will jar, pry or twist the thing loose. But suppose the final heave does do the job. Then what?

"It's just a matter of luck whether the final heave is all used up in breaking the thing loose or whether it was all ready to come anyway and most of the force goes into moving it.

"Accident reports show that in the latter case the result is a mashed toe, a hand full of bruised knuckles or a hard fall, and all because when the thing finally lets go, the man can't stop either it or himself.

"The only seamanlike thing to do when a job takes more force than it should is to get the right tool to loosen it or to keep your body under control so you *know* what will happen when it comes loose."

How the Metallurgist Can Reduce Costs

When sufficient latitude is allowed the metallurgist to operate on about the same level as the chief engineer, his watchful eye quickly catches unnecessary dissipation of time, money, or materials, the Los Angeles chapter, American Society for Metals, was told recently by Joseph A. Burgard of Columbia Steel Company.

"For example, a die for hot punching may be contemplated, which to the industrial engineer, may promptly spell out an expensive hot work die steel, and because of its great size may cost, say \$2,000. The metallurgist, weighing the exact service of the die, might easily determine that there are only two or three critical areas in the die that require the properties of a hot punch die steel.

"Under the circumstances, he might elect to make the entire die from one of the construction alloy steels, and overlay, at these noted critical areas, one of the highly alloyed hard-facing metals, and as wear progresses, rebuild these areas with hard-facing metals. The total cost of such a die might easily save half of the original cost of material, and half of the die sinking labor charges, through the easier machining of the lesser alloyed steel."

One way to bring down product cost.

LABOR

and the
INDUSTRIAL WEST

By J. B. FITZGERALD

Western Industry's
Labor Relations Analyst

(Formerly Manager, Lumbermen's Industrial Relations Committee, Inc., Portland, Oregon)

Employers Losing in Pension Bill Battle

STRIKES appear to have been successful during the past several months when based on demands for employer-paid pensions. The steel strike was won when Bethlehem signed up October 31 with the CIO steel workers. Within "a few weeks," according to the monthly report of the Bureau of Labor Statistics, U. S. Department of Labor, "over a half-million basic steel and fabricating workers were brought under the coverage of new or revised pension and insurance plans."

At 10¢ employer cost per hour these pensions and insurance benefits for the first half-million workers total \$5,000 an hour, or \$10,000,000 for a 2,000 hour year. And, the first half-million were not all the steel workers. Also, there were other workers, some with contributory pensions—as were a few of the big steel companies—but mostly with no pensions at all, and all thinking about pensions and insurances to be paid for by the boss.

With Bethlehem signed, the other larger steel companies fell into line on pensions during November and these were followed by iron ore companies under agreements with the steel workers. The CIO unions in December signed up Continental Can Co. and the Timken Roller Bearing Co. Twenty-four Continental Can plants and 10,000 workers through a CIO agreement, are now a single bargaining agency for the first time; and with a 5-cent per hour wage increase, a non-contributory pension, a la Bethlehem, betterment of a company paid insurance program and an increase in shift differentials.

"The agreement with Timken" the Bureau reported, "ended a 38-day strike at 5 plants. It established a Bethlehem-type pension plan, expanded the social insurance program,

jointly financed, and increased sickness and accident benefits."

"The Aluminum Company of America and the International Council of Aluminum Workers, AFL, representing some 10,000 workers in five plants, negotiated an agreement providing for a company-financed pension plan similar to the Bethlehem plan and for company-paid death, sickness, accident and hospitalization benefits. A seven-week strike in nine other Alcoa plants ended early in December with an agreement covering some 16,000 Steel Workers (CIO) and giving them "substantially the same increase in pensions and insurance benefits as negotiated earlier by the company and the AFL Aluminum Workers."

Other large employers granting pensions during recent months to employees, included the following reported to the Bureau:

Philco Corporation, Philadelphia, CIO agreement, covering 7,000 workers, 8½¢ per hour from company to finance pension plan and social insurance.

The new pension plan of the American Telegraph and Telephone Company was written into a contract between the affiliated Western Electric Co., near Chicago and an independent union representing some 16,000 workers in that unit.

Most of the pensions taken on by employers since about November 1 were patterned after the Bethlehem settlement.

Eliminating most of the larger companies in the metal working division, thus leaving 91 units employing from 200 to 3,400 which were reported as making recent agreements with unions, a study of these showed a wide difference in items jointly accepted. Of the 91, 36 were reported as having granted a general wage increase; with

about half of these adding one or more of the other items listed. Second on the list was new insurance plan, with 31 settlements; third, pension plan with 20 agreements; paid holidays totaled 16 and no change reported 11. "The general wage increase" (where included) "averaged approximately 5 cents an hour," the Bureau found.

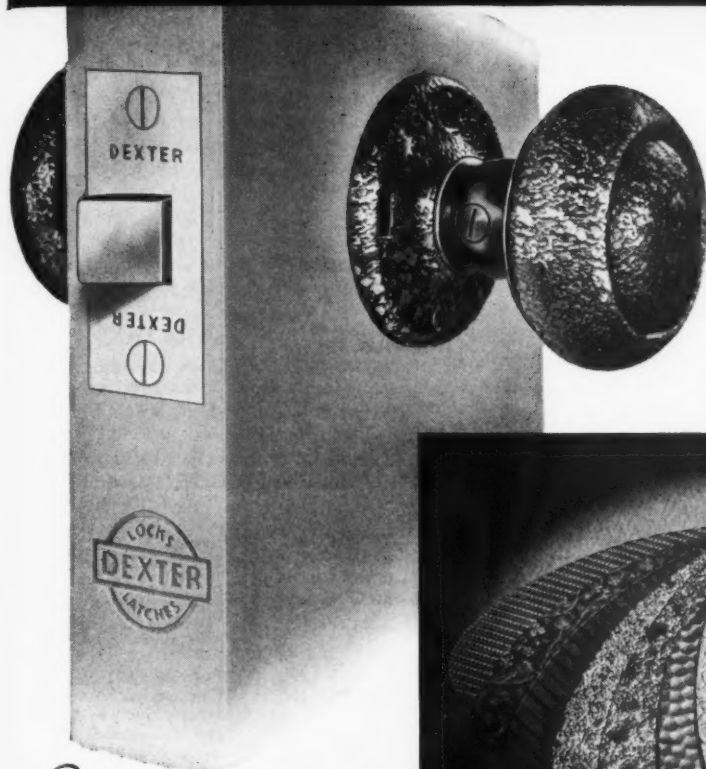
Pensions are far more popular with the metal working industries than with any other group. The food industries continue month after month to show wage increases, and many betterments, in holidays, vacations, insurance and so on.

Of fifteen textile units, two made some concessions, one health and insurance program, the other increased minimum rate and added insurance benefits. The other thirteen did not increase wages nor add anything else. Lumber and Furniture classification, 16 wage units, 10 no wage adjustments, six with from 2¢ to 7¢, and nearly all 16 with some increase in social benefits, but no pensions. Again no pensions in paper and allied products, with 14 units. Four showed wage increases, one 5%, one 5¢ and two at 2½¢. All but the one giving 5% added something to employee benefits.

Chemicals and allied products, with 23 units had three which did not make wage adjustments. Five gave or continued in contracts company paid pensions and nearly all added something to social insurance, vacations and holidays. The rubber industry section contained 6 employing units, four gave no general wage increase, one gave 5¢, the other 6¢. One also will reopen wage and pension talks on 10 days' notice.

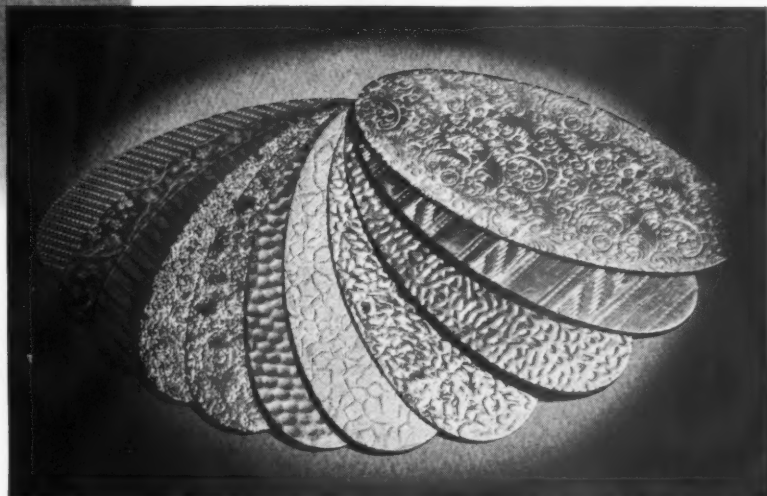
Leather, seven units, three increased rates, 2½¢, 5¢ to 13¢ and 10¢. One decreased piece rates. Stone, clay and glass, with four units consisting of some 30 employers and more than 6,000 employees, had three, no wage changes and one with 4¢. Two large units, an association of 14 fire brick refractories in Pa., Ohio, Ky., and Mo., and the American Radiator and Standard Sanitary Corp., nationwide, and with plants at San Pablo and Torrance, Calif., both agreed to pensions, company paid; also social insurance, contributory.

REVERE EMBOSSED METAL ADDS TO BEAUTY of Solid Brass Hardware



A Dexter set made by National Brass Company, Grand Rapids, Michigan; in the lifetime beauty of solid brass. Knob is fabricated from a Revere Embossed Pattern.

Inset, some embossed patterns produced by Revere.



Quality hardware for homes and commercial buildings always is solid brass or bronze. There are no substitutes for these solid, ever-lasting metals that cannot rust, whose beauty is not skin deep but goes all the way through. Thus time and use improve the finish instead of spoiling it. That is why good buildings everywhere feature solid brass and bronze for such items as locksets, door knobs, butts, latches, hangers, hooks, and similar parts that should speak of quality as long as the building stands.

Take the National Brass Company. This well-known hardware manufacturer features solid brass 100%, knowing that any architect, builder or home owner recognizes the worth of enduring high quality. Their line is trademarked "Dexter", and one of its feature items is trim in etched finish. Actually these items use solid Revere Embossed Brass, which is furnished in a variety of standard and special patterns, ready

for fabrication into articles of exceptional attractiveness, not only hardware, but also a wide range of products such as compacts, clock dials, cigarette cases, jewelry. National Brass states that Revere Embossed Brass not only produces a really handsome line, but one whose beauty increases with age, since use brightens the high-lighted raised surfaces, while the shadows in the depressions provide an effective contrast. Thus this fine Revere Metal assures lasting satisfaction to the home owner, and enhances the reputation of the architect, contractor, and builder. . . . For true quality, high sales appeal, and enduring service, wise manufac-

turers use solid durable metals such as copper, brass, bronze, nickel silver provided by Revere not only in Embossed Metal but in plain sheet and strip and in bar, rod, extruded shapes.

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GENERAL WAGE CHANGES IN PACIFIC-ROCKY MOUNTAIN REGION

NOTE: This tabulation only reports changes. Information on the large number of contracts renewed without change is unavailable. Therefore the tabulation should not be construed as an indication of the overall trend.

Compiled from various sources by Bureau of Labor Statistics, Wage Analysis Branch

(Where initials of unions are given below: A=A F of L; C=CIO; I=Independent)

ARIZONA	Location	Date	Amount of Increase	Name of Union & No. Employees	Related Information
Manufacturing					
Arizona Retail Lumber & Bldrs. Assn.	Phoenix	12/13	*4 1/2c	A—AFGW—91	*Retro. 11/1/49 1 wk. vac. 1 yr. Dbl. time for Sun. 7 pd. holidays
Phelps Dodge Corp.	Douglas	12/13	5c	A—Metal—75	
Standard Brands Co.	Phoenix	12/13	* (1) \$3.50 wk. (2) \$2.00 wk.	A—TCWH	(1) Drivers (2) Warehouse
Mines					
Phelps Dodge Copper Co.	State of Arizona	12/1	5c	IAM—I MTC—C—4,500	
Services					
Five Transfer and Whlse. Cos. Tucson		12/14	2 1/2c	A—TOWH—80	
CALIFORNIA					
Manufacturing					
Apparel					
California Hand Prints	Hermosa Beach	12/5	5c	C—TWUA—125	
Pacific Textile Pro.					
Chemicals					
Mastic Tile Corp.	Long Beach	12/49	17c	A—ICW—60	
Chlorine Sol. Co.	Los Angeles	11/49	5c	A—ICW	
Zenith Plastics Co.	Gardner	11/49	5c	A—ICW	1 wk. vac. 6 mos., 2 wks. 2 yrs., 3 wks. 3 yrs.
Copra Oil & Meal Co.	Wilmington		5c		
Spencer-Kellogg & Sons	Wilmington				
Vegetable Oil Products	Wilmington				
Cutter Laboratories	Berkeley	12/15/49	*5c *2 1/2c	UOPWA—C—400	*5c eff. 4/1/50; 2 1/2c eff. 10/1/50
Food Processing					
Manchester Cheese Factory	Manchester	12/ 2/49	*9 1/2c	A—TCWH	*Retro. 5/1/49 5 days sick leave
Ladies Choice Foods Co.	Los Angeles	11/49	5c	A—ICW	
Swift & Co.	Fresno	12/5	*7 1/2c	A—MCBW—150	*All employees. Plus add. 7 1/2 hr. to killers. Retro. 10/1/49
San Joaquin Valley Poultry Pro. Assn.	Porterville and Bakersfield	12/ 5/49	*5c-20c	150	*Retro. 7/1/49
The Cudahy Packing Co.	Fresno	12/ 2/49	6%—8%	A—MCBW—100	Work clothes bonus approx. 50c wk. Add 5 min. rest period.
San Joaquin Cotton Oil Co.	Chowchilla	12/ 1/49	*5c	A—MCBW—120	*Retro. 7/1/49
Growers-Shippers Assn.	Santa Maria, Guadalupe, Lompoc, Oceano	11/ 1/49	5c-13c	TCWH—A	
COLORADO					
Mining					
Resurrection Mining Co.	Leadville	12/ 2/49	*\$1.00 day decrease	A—FLU—175	*35c per day bonus when lead & zinc ore reaches comb. price of 22c lb.
OREGON					
Food Processing					
Oregon Egg & Poultry Dealers Assn.	Portland	12/21/49	*5c	AFL	*Retro. 10/17/49
Miscellaneous Manufacturing					
3 Casket Cos.	Portland	12/ 5/49	None	A—UIU—110—3	Improved vacation
Oregon Casket Co.	Portland	12/12/49	None	A—UIU—3	Improved vacation
Transportation					
Truck Operators League	Portland	12/19/49	None	AFL—300	6 paid hols. Dble. time if worked
WASHINGTON					
Seattle Milk Dealers Assn.	Seattle	12/ 7/49	* (1) 65c day (2) 15c day (3) 10c day	A—TCWH—100	* (1) Retro. 12/1/49, male and female. (2) 3/1/50 male emp. (3) Eff. 6/1/50 male emp.
Venetian Blind Mfrs.	Seattle	12/15/49	* (1) 2 1/2c (2) 2 1/2c	AFL—FW—40	* (1) 12/15/49. (2) after 3 yrs. serv.
Taylor Spruce Co.	Vancouver	12/ 9/49	5c	A—IUOE	
Tubbs Cordage Co.	Seattle	12/ 9/49	10c	A—TCWH	* (1) Retro. 1/1/49
Container Corp. of America	Seattle	12/ 9/49	* (1) 8c (2) 4 1/2c	A—TCWH	(2) Eff. 1/1/50

Apprenticeship Committee Completes State Standards

Management and labor representatives of the Machinists' State Joint Apprenticeship Committee of California have signed state standards of apprenticeship for the machinist trade. These standards now await the approval of the California Conference of Machinists and employer associations before being presented to Paul Scharrenberg, Administrator of Apprenticeship, State Department of Industrial Relations, for his approval and signature.

George Clark of Solar Aircraft Company, San Diego, employer representative, is the chairman of the State committee, and John J. King, Business Representative of Tool & Die Makers Local 1176, I. A. of M., Oakland, employee representative, is secretary. Employer members include T. F. Halpin, Fairbanks-Morse & Co., Pomona; W. W. Tilly, Fresno; Oliver Johnson, Johnson Machine Shop, San Jose; Robert Girard, California Metal Trades Association, San Francisco; William Cranston, Thermador Electric Co., Los Angeles; B. F. Giebler, San Bernardino; Francis A. Nichols, Friden Calculating Machine Co., Inc., San Leandro (Assistant Secretary to Committee); Roy J. Harper, California Independent Garage Owners Assn., Los Angeles; N. R. Stultz, San Joaquin Industrial Assn., Stockton; A. C. Westergard, Independent Garage Owners Assn., Sacramento, and B. W. Messer, Lockheed Aircraft Corp., Burbank.

California Leads In Pine Production

California has become the leading pine producing state in the West, having topped Oregon, the traditional leader, in output of Ponderosa Pine and in total production of all pine species since the end of the war. Preliminary figures for 1949 indicate that California mills manufactured 1,302 million board feet of Ponderosa Pine and 211 million feet of Sugar Pine for a total of 1,513 million.

Preliminary estimates for Oregon place Ponderosa Pine production at 1,203 million board feet, Sugar Pine at 62 million and Idaho White Pine at 2 million to total 1,267 million feet. S. V. Fullaway, secretary - manager, estimates there were nearly 600 active mills in the Western Pine region of California during 1949. California also led the entire region with a total production of all species of 2,270 million feet in 1949, according to the Western Pine Association figures.

Snap-on^{*} the **BOXOCKETS** **Strongest.. Safest.. Wrenches** **Your Maintenance Men Can Use!**

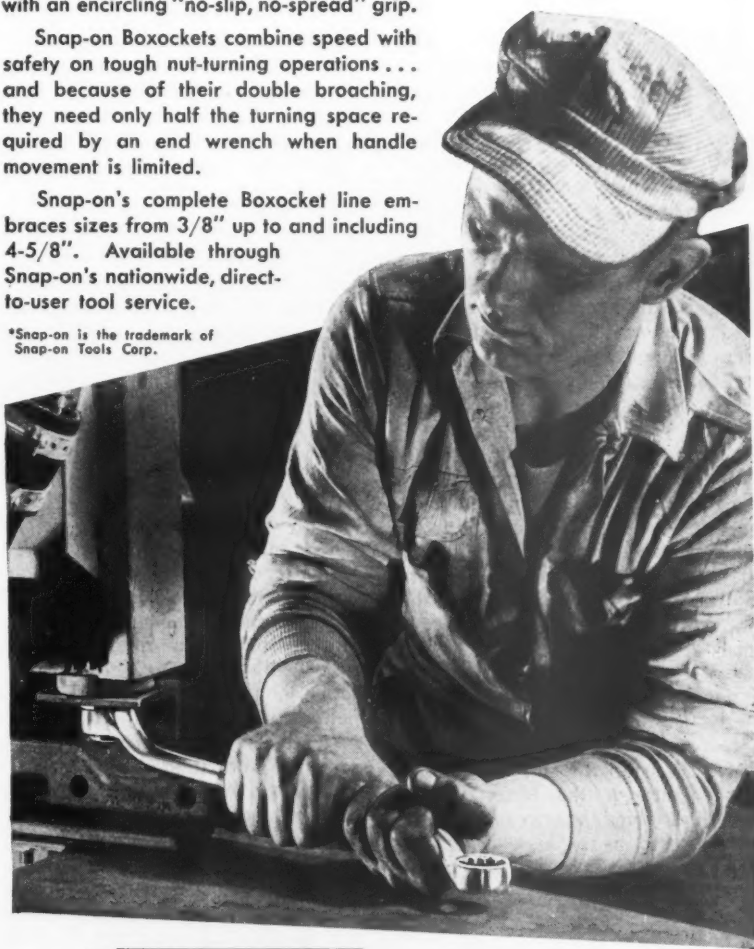
HERE is safe, powerful leverage that invites confident wrench speed. See how easily it slips into those hard-to-get-at places... engaging the nut on all six corners with an encircling "no-slip, no-spread" grip.

OVER 4000 TOOLS
IN THE COMPLETE
SNAP-ON LINE

Snap-on Boxockets combine speed with safety on tough nut-turning operations... and because of their double broaching, they need only half the turning space required by an end wrench when handle movement is limited.

Snap-on's complete Boxocket line embraces sizes from 3/8" up to and including 4-5/8". Available through Snap-on's nationwide, direct-to-user tool service.

*Snap-on is the trademark of Snap-on Tools Corp.



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REGIONAL REVIEWS

Tehachapi to Tijuana

Smudge Pots Next on the List In Regulation of Smog

Citrus growers find their supremacy challenged as the urbanization of the Southland brings in new population with conflicting interests

LOS ANGELES—Now it turns out that industry isn't the only culprit to be blamed for that eye-smarting smog which filters the vitamins right out of southern California's health-giving sunshine, incidentally blackening the reputation of this tourist paradise over the length and breadth of the land.

The ugly black smudge pots that save the citrus crop on the cold winter nights when temperatures drop below 32 degrees, at last have had the finger put on them by the law.

There's nothing new about the orchard smudge problem. For at least twenty years, Federal agricultural scientists have been educating growers to the fact that a smoking smudge pot isn't necessary . . . that it's the heat, not the smoke, that warms the trees. Heaters have been improved, partly through money furnished the State University for research, although the war delayed production of some newer models. And it simply hasn't been politically expedient to clamp down on pollution with the sketchy laws then on the books.

Not that citrus ranchers aren't entitled to sympathy for their long battles through the bitter nights, sometimes seeing the price of an entire season's crop go up in smoke during a single week, yet knowing that to let a tree freeze may kill it.

\$500,000 Per Hour

Minimum protection calls for at least 40 heaters per acre at a cost ranging from \$100 to \$240 each, and most heaters burn anywhere from \$3 to \$5 worth of oil per acre per hour under average cold conditions. Approximately 150,000 acres of citrus in California are protected by orchard heaters, and on cold nights when all of

them are burning, the growers' fuel bill alone will total about \$500,000 per hour!

Now, however, there's a powerful new bloc operating—the embattled housewives of war-mushroomed towns, who strenuously object to seeing their clean washing soot-sprinkled as it hangs on the lines, or their window curtains turn dingy gray overnight. San Bernardino County, in fact, got around to passing a resolution declaring nine types of commonly used smudge pots illegal and prohibiting use of rubber products in orchard firing—this one referring to the practice of burning old auto tires as a substitute for smudge pots.

Smell Is Still There

Two weeks later, of course, the proposed county ordinance was safely "filed for future action" after loud protests from citrus growers against "hasty" action. Several smaller cities, however, have begun to take up arms, propelled by vigorous agitation from urban householders. The issue is a political hot potato, but with the experience of Los Angeles setting a precedent, formation of additional Air Pollution Control districts in other counties under the new state enabling act is an inevitable, if not necessarily imminent, development.

Los Angeles industrialists may take a certain wry satisfaction in seeing this handwriting on the wall. With nearly two years behind them in their own battle of smog, they at last see tangible evidence of progress. The fight has been costly but over the long pull it may pay unexpected dividends.

Take that No. 1 smog offender, sulphur dioxide. A year ago, 1,143 tons of measured pollution were being discharged into the local atmosphere each

day, more than 700 tons of it consisting of the irritating SO_2 . And of this 700 tons, more than 400 were from oil refinery and chemical plant wastes.

Smog Is Valuable

Today 38 per cent of this sulphur dioxide is passing into byproduct plants which are extracting the sulfur in solid form for commercial sale. By March of this year, another 159 tons daily will be treated in a new \$1,000,000 recovery plant and this major source of eye irritation will be reduced by a total of 75%.

Just how the remaining daily output of 300-plus tons can be corralled hasn't been figured out. Much of it dribbles from small commercial smokestacks, apartment oil furnaces, diesel trucks and buses, and passenger car exhausts. Other chemical smoke clouds arise from wood-working plants and lumber yards, asphalt plants, and small foundries. In many of these operations, proper treatment of waste gases would be almost prohibitive in cost.

For instance, a proposed installation of corrective devices for Bethlehem Pacific's open hearth furnaces at its Vernon plant would have cost \$500,000. Instead, Bethlehem decided to spend an estimated \$2,500,000 for a 75-ton electric furnace which will be able to produce more steel than the three open hearth furnaces, thus bypassing the fume question. The gray iron foundries, however, haven't yet solved their problem. Representatives of 35 local foundry firms have asked for a four-month extension of time to develop some satisfactory fume-suppressing equipment, earlier efforts to abate the nuisance having proved unsuccessful.

Next marked for crackdown by Air

Pollution District officials are industrial and municipal rubbish burners and finally the thousands of backyard incinerators whose combined smog-generating effect may be more than is commonly supposed.

New Industrial Area

Sixty miles away from the smokestacks of Los Angeles, a new industrial area may be sprouting under the stimulus of proximity to Fontana's constantly enlarging steel capacity. Rumors are current that major automotive makers and some eastern steel products manufacturers have been shopping around for plant sites, intrigued by potential savings in hauling costs. Freight rate increases, coupled with rising output of cars, might logically justify transfer of more component manufacture to the West Coast. With Ford now trying to boost its output to 5,000 cars per day, and General Motors reportedly figuring on allocating more automobiles to the beckoning West Coast market, production volume for this area may well reach levels arguing for parts production closer to western assembly points.

The TV Mushroom

Local industry is curiously watching the television bubble, wondering how long the boom can last. These periods of mushroom growth have been habitual with the radio industry and this one is the biggest thing since crystal set and headphone gave way to the console and loudspeaker. Such local producers as Hoffman and Packard Bell are finding profits zooming despite recent sharp slashes in retail prices of receivers. Prices of components, particularly the big TV tubes, are said to have dropped enough to keep profit margins about the same, although of course, retail dollar volume is reduced.

Packard Bell, with half a dozen small plants sprinkled over this area and a new headquarters plant being added to the string, is turning in new high earnings records. President Hoffman of the firm bearing his name says the outlook for the immediate future is bullish, although the long pull isn't quite so clear.

\$80,000,000 for TV Sets

Incidentally, in chalking up a year's phenomenal growth, the new TV public laid out more than \$80,000,000 for sets in the Los Angeles trading area during 1949. These figures help document RCA President Frank Folsom's statement to the effect that "TV's vast consumption of raw material and em-

Continued on next page



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LOS ANGELES REVIEW

Continued from page 57

ployment of thousands helped substantially to stop the general industrial slump of early 1949."

Cheery Note

All this is having its psychological effect on a local depressed area—Hollywood, where the lean years have decimated movie studio population and phonograph record makers are still suffering from the industry's civil wars over what turntable speed to use. Now some encouraging factors have entered the picture.

From what Hollywood once knew as "Poverty Row" may soon come strong competition for eastern television program producers. Pencils are being sharpened in a number of minor Western film factories for a showdown on who can turn out TV programs at less cost—the big New York advertising agencies with their elaborate system of salaried stars, hand-built sets, and much-rehearsed "live" shows, or "canned" epics on film, produced with "bit" players and with ex-movie sets whose cost long since was written off studio books.

Horse Opera Pays Off

Production-cost competition may, indeed, be the critical factor in enabling Hollywood to become the nation's TV capital. If so, the West can thank the skill and ingenuity of the men who have learned their trade not in million-dollar super-colossals, but in the production of horse operas, one-reel comedies, and other drastically budgeted epics.

The Profit Key

The Westerners argue that it's far cheaper to hire film talent for key scenes, add minor bits of action, and assemble the entire show production-line fashion with the aid of cutting room shears, than it is to collect a cast and keep the entire crew on salary through lengthy rehearsals. Costly backgrounds need seldom be built, since most Hollywood studios have dozens of usable sets which can be adapted at little or no cost to suit the script. Cost of the film TV shows can be pro-rated over as many showings as can be booked for the film, without the terrific line costs involved in network TV.

Good Looking Market

The TV market looks good to the movie moguls, all the more so because of the difficulty in extracting sufficient

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revenues from films, now that exhibition has been divorced from production by recent anti-trust decrees. One Hollywood producer recently observed that only 20 per cent of the box office dollar now comes back to the producing studio, and unless this share is increased by cutting costs, the outlook for the studios is gloomy indeed.

Here's a Neat Trick

The classic feat of converting the wolf at the door into meat for the table is being attempted by one Los Angeles theater owner, who has replaced his

movie screen with a giant-size TV screen and thrown the doors open to all comers without charge. He figures the revenues from pop and snacks sold to his patrons will enable him to show a profit. Serious-minded realists may scoff, but the fact remains that in the windows of movie exhibitors' row in midtown Los Angeles, photo exhibits plugging current studio releases now share space with displays featuring popcorn machines and candy dispensers, proving again that you never know when an industry's by-products may turn out to be the main products.

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REGIONAL REVIEWS

Sierras to the Sea

In Work Simplification Lie Many Roads to Profit

Junior executives see how one percent saving in labor costs equals profit on \$1,000,000 of sales, but can top management be persuaded?

SAN FRANCISCO—Once there was a middle western flour milling company whose top executives mostly came up through the sales and advertising end, and thought the answer to all financial problems was more volume. Nevertheless, the firm did not seem to make much money until after the factory manager showed them that a reduction of one per cent in labor costs was equivalent to the profit on \$1,000,000 worth of sales.

If this actual occurrence had been told by Ralph M. Barnes, the country's top-rated man on motion and time study and other phases of industrial engineering, at an NAM meeting where top management always turns out in force, it undoubtedly would have caused much questioning of Mr. Barnes. In all probability it would also have led to immediate and large-scale efforts for more efficient operating methods.

Mr. Barnes, be it known, is a big prize that the West has acquired, for he has left the university post in Iowa that he held for so many years and moved to Los Angeles, to take up similar work at UCLA in the College of Business Administration.

Willing Ears Reached

But his story only reached, for the most part, middle and lower grades of management at the industrial engineering institute on "Work Simplification" on the UC campus at Berkeley Jan. 27-28. And so, despite the fact that the attendance at the institute reached 250, a big selling job for industrial engineering in the West remains.

Possibilities for savings in labor costs lie in many directions, he brought out. For example, machine tools perform wonders in machining material, but the time thus saved is all too often

lost in loading and unloading. In the case of indirect labor, he cited instances of janitors being able to perform all their work in the morning and having nothing to do in the afternoon. And in the offices he indicated that the time and lost motion involved in handling time cards would be impossible to compute.

Army Shows How

By work simplification \$2,585,725 was saved at the San Francisco Port of Embarkation between July 1, 1948 and Dec. 31, 1949, it was reported by Lt. Col. R. E. Vandenberg, chief of the management division at the port. Internal recurring reports were cut from 285 to 51, and processing time for civilian personnel returning from overseas reduced from an average of two and one-half days to one day, the latter largely by putting processing clerks on a production line basis and paying them overtime when the overseas passengers arrived too late in the week for ordinary processing.

But in solving this problem the army had to go half way around the world and get cargo stowage methods in overseas ports improved so that baggage moved simultaneously with passengers. Another big saving was in laying up one of the two harbor craft ferries used to transport troops between processing centers around San Francisco Bay.

The Human Factor

Machines and methods are truly efficient, however, only when their effect on operators is concerned, Mason Haire told the institute. He is a Harvard and MIT man now with the department of psychology and institute of industrial relations in the university, also a very down-to-earth indi-

vidual who cited instance after instance of well-laid plans that went a-gley because the human element had not been taken into consideration.

One example was of two parallel inspection lines set up so that the girls would be back-to-back and thus could not talk to each other. Instead of efficiency, this was inefficiency, he showed, because the girls were more interested in their work if they could at the same time have a normal amount of conversation. Harold Engstrom, manager of industrial engineering, Sylvania Electric Products, New York, another speaker on the program, said he was not convinced that women on conveyorized operations were bored with their jobs.

Freight Service Speeded

Three railroad presidents, F. G. Gurley of the Santa Fe, F. J. Gavin of the Great Northern, and F. B. Whitman of the Western Pacific, with their traffic and operating vice-presidents, recently put on a big good-will luncheon here for prominent people in public life, plus a good sprinkling of shippers. The luncheon was duplicated in other cities along the coast, and the visitors announced they were working out arrangements for better cooperative service. The specific result is a full day saving in delivery time over the "Bieber Route" for freight between southern California, the San Francisco Bay region and the Pacific Northwest. Two trains will operate each way daily over the entire route, by Santa Fe from southern California to Stockton, Western Pacific thence to Bieber, and Great Northern from there north.

California State Chamber of Commerce put on February 2 what has generally been declared as the finest conference of its kind the chamber has

staged. It was a workshop conference on developing new payrolls, held at the University of Santa Clara. There was an attendance of over 300 from northern California, and the chamber is planning a similar affair for the south. It was handled on a case history basis, discussing ways and means of attracting industries and commercial establishments.

Additional steps to develop the industrial economy are being taken by the San Francisco and Oakland chambers of commerce. The former has set up an industrial financing committee, to see that no new factories are lost to other areas because of lack of equity capital. Marco W. Hellman of J. Barth Company is chairman. The latter has provided a products and marketing committee, to obtain new products for Alameda County manufacturers and find markets for both new and existing products. Don Sigerson, president of the Allwork Manufacturing and Engineering Company, is chairman.

Meat Packers Pack Food for Thought in Three-Day Meet

Meat packers from nine Western states (California, Washington, Oregon, Idaho, Montana, Utah, Nevada, Arizona, and New Mexico) met in San Francisco Feb. 21 to 23 to chew over major problems that affect the industry, and exhibit some of the latest equipment and methods. Western States Meat Packers Association held their fourth annual convention.

Former Secretary of Agriculture, Clinton Anderson, now United States Senator from New Mexico, headed the list of speakers when he discussed "Can the West Feed Itself?"

High point of this convention was some really constructive thinking of the membership when they brought up for consideration two main points of Western importance: (1) Locating one or more pharmaceutical factories in the West to utilize animal by-products from which vital drugs such as

cortisone and adrenalin are manufactured. Large quantities of these and other such life-saving drugs are lost to medicine through lack of Western factories to process the animal by-products of Western packing plants. (2) Encouraging the shoe industry to locate in the West to utilize the 2,500,000 hides resulting from Western packing operations; 80% of these hides are now shipped East. They also discussed increasing hog production to consume surplus grains. 80% of Western-eaten pork is imported.

Some 50 companies took exhibit space in the Palace Hotel in connection with the convention. These firms introduced to the industry the newest developments in packing house machinery, packaging, refrigeration, transportation, and miscellaneous equipment. This was one of the most extensive suppliers' exhibitions sponsored by the meat packing industry, and the only one of its kind held West of Chicago.



WESTERN PACKAGING CONFERENCE

• Prominent Western packaging people who turned out in force for the first annual meeting of the newly-formed Western Packaging Association in San Francisco. Standing from the left, are N. C. Phillips of the L. H. Butcher Company; Peter D. Bowley of Peter D. Bowley & Associates; Kenneth K. Dean, Publisher, Good Packaging Magazine; William H. Jaenicke, Mailler Searles, Inc.; Miss Ruth Fairbairn, Fairbairn Tape & Label Company; Fred Todt, Fred Todt Company; Hugh Hicks, Marathon Corporation; Leo Blank, Stecher-Traung Lithograph Corporation; Spencer Tilden, Arabol Manufacturing Company;

Herbert King, King & Anderson; E. H. Heimer, Clapp & Poliak, Inc.; and E. C. Persike, Sylvania Division, American Viscose Corporation. Seated, from the left, are John P. Neely, Eastman Tag & Label Company; Tom Leach, Crocker-Union Division, H. S. Crocker Co., Inc.; Andrew Johnson, Zellerbach Paper Company; G. C. Bennett, Paterson Pacific Parchment Company; Alexander Donald, King Sales & Engineering; Karl Snow, Eagle Machinery Company; Robert P. Bemiss and W. E. Jason of the Bemiss-Jason Company; William K. Allen Ferguson, Reynolds Metals Company; H. F. Middleton, Acme Steel Co.; Frank Molloy of Blake, Moffitt & Towne.

Heading the new organization is William H. Jaenicke, president of Mailler Searles, Inc., San Francisco. Other officers are: President-elect, Leo Blank, Stecher-Traung Lithograph Corporation, San Francisco; vice-president, Fred Todt, Fred Todt Company, Los Angeles; secretary, Kenneth K. Dean, Good Packaging Magazine, San Francisco;

and treasurer, Peter D. Bowley, Peter D. Bowley & Associates, San Francisco.

Elected as board members are Hugh Hicks, Marathon Corporation, San Francisco; E. H. Southwell, E. H. Southwell Company, Los Angeles; and N. C. Phillips, L. H. Butcher Company, San Francisco.

The Western Packaging Association is

composed of Western firms engaged in the manufacture and sale of packaging machinery and supplies, materials handling and processing equipment. More than 50 such companies from all points in the West have already enrolled as members. Address of the Association is 210 Mississippi Street, San Francisco 7, Calif.

REGIONAL REVIEWS

Olympics to the Coeur D'Alenes

Pollution Control Commission Turns Blast on Pulp Mills

Political flavor to the move, and only part of the mills singled out. Anti-waste facilities too costly for smaller establishments

SEATTLE—As the heat of the blast leveled against four of Washington state's largest sulphite pulp mills by the State Pollution Control Commission dies down, the practical questions arise: "How much pollution will be abated how soon?"

On January 4 the commission directed the four companies, in effect, to prepare plans for control installations within 15 days and to have the installation substantially completed by September 1, 1951. The commission's move is heralded in many circles as carrying much political flavor, and it has been foreseen for some time in the rising drum beats of commercial and sports fishermen mainly, aided vigorously in places and at times by some of the press.

Four Mills Attacked

The four affected mills are: Rayonier, Inc. at Hoquiam, Crown-Zellerbach Corporation at Camas, and Weyerhaeuser Timber Co. and Soundview Pulp Co., both at Everett. All manufacture sulphite pulp, but the Camas plant manufactures other types also. It is located on the Columbia River, just east of Portland, Oregon. The Rayonier plant is located on the relatively enclosed waters of Grays Harbor on the Southwest Coast. The two Everett plants are located on the tide-swept waters of Puget Sound, but fishermen point out that both plants are very near the mouth of the fish-important Snohomish River.

The commission's directive is rather arbitrary in that there are other mills in the state which also manufacture sulphite. None of these are as yet faced with a "clean-up" order. As for the time limit given for completion of installations, it's plenty short and there are very practical reasons why it isn't likely to be met.

What seems to be true is that the four affected Washington mills will now make a very determined effort to solve a waste liquor disposal problem for which no one as yet knows the complete answer, and that related efforts will also be made by other mills in the state, in Oregon, and possibly in other states also.

There Are Reasons

The sulphite pulp mills have not been discharging waste liquor because they wanted to. For one thing, they know that there are important fuel and other values in the liquor. They would like to capture these values—particularly with the steady dwindling of the once very cheap and bountiful hogged fuel supplies from the sawmills. However, despite heavy expenditures in research, the final answer hasn't been found yet.

So far the best answer seems to have been worked out by the Weyerhaeuser Timber Co. It has another sulphite pulp mill at Longview, on the lower Columbia River, and now has in operation a magnesium-base process, on which research was launched years ago, and which involved very expensive and extensive conversion of the original plant which used the traditional lime-rock base. However, as was anticipated to some extent, a great many problems have been encountered in working out the new process on mill scale. An official of the company recently stated in an open meeting that the recovery operations were about 75 per cent effective, so far.

The big Puget Sound Pulp & Timber Company's plant at Bellingham, which also discharges its wastes directly into salt water, and which has not been affected by the commission's directive, has for several years been converting waste liquor into com-

mercial alcohol. This has often been pointed to by the layman as an example of waste liquor recovery, but in fact the alcohol process utilizes only the wood sugars and thus recovers only some two to three per cent—which is far from a total solution.

Rayonier's plant at Shelton, situated at the end of a long, narrow and shallow salt water inlet, utilizes a burning process. Its installation many years ago was spurred by a threat of damage action by oyster growers who operate in adjacent waters.

Not a Local Problem

What about pulp mill pollution? Do they have the problem elsewhere? How do they handle it—or do they? The state of Oregon has fewer mills, and all but one relatively small one are located on rivers. The state has already issued an ultimatum which requires clean-up by December, 1951. They are all generally smaller mills than the affected Washington mills. In engineering circles it is readily admitted that the smaller mills probably cannot stand the added operation costs that would be imposed by installation of anti-waste facilities, even though they might finance the installation. The only solution for the smaller plants may be closure.

In Wisconsin

Wisconsin, which has an important pulp industry, has had anti-pollution legislation on the books for a quarter of a century or so, but the mills have not yet solved the problem of waste liquor disposal. They still dispose of it in much the old fashioned way, and into streams. But, indicating awareness concerning the increasing pressure against pollution, a commission of Wisconsin pulp men has just returned

from a study of the pulp industry in Sweden.

What did they find in Sweden, a country which has been producing lots of pulp for a longer time than most parts of America? They found liquor being dumped into streams; they found some recovery being made of alcohol, but that recovery influenced very much by the economic pressure of Sweden's total lack of petroleum resources for fuel. They did *not* find the problem all solved in Sweden and the engineering work all done.

Getting back to Washington, the Soundview and Crown-Zellerbach organizations have been working jointly on a plant size experiment at the small and old mill which the latter owns at Lebanon, Oregon. They have been trying out an ammonia process, but they concede it is still highly experimental.

There are many hard facts to prove that you can't get rid of waste liquor just by edict. In the first place, the engineers haven't got the final answer, so how can a mill man know what to install if he doesn't know what equipment is needed. How much plant-scale experimenting can the industry afford to do?

Metallurgical Problems

Again, the metallurgical problems are by no means solved. There is still considerable doubt that metal presently being used will stand up under the new processes.

The Weyerhaeuser process now being used with partial success requires rather elaborate boiler installations. Under patent limitations only one company will build the boilers. There is much doubt that they could deliver the needed number of boilers if faced with equipping four big mills within the next 18 months.

What About Cost?

What about cost? An unofficial engineering estimate for conversion of one of the larger mills runs around \$12,000,000. Such added investment might well raise pulp production costs the added dollar or two which might take it out of profitable competition with other parts of the country, with the Scandinavian producers, and the Canadians.

A Further Point

There's a further point. Burn the waste liquor and get rid of so-called water pollution and in the process load the air with extensive new pollution of injurious gases. The fishermen might be satisfied, but what about the farmers who might find their pastures and crops injured? This latter is no sprig of the imagination; near the Pacific Northwest's new aluminum plants the

air pollution problem has already brought threats of action.

Talk Is Not Enough

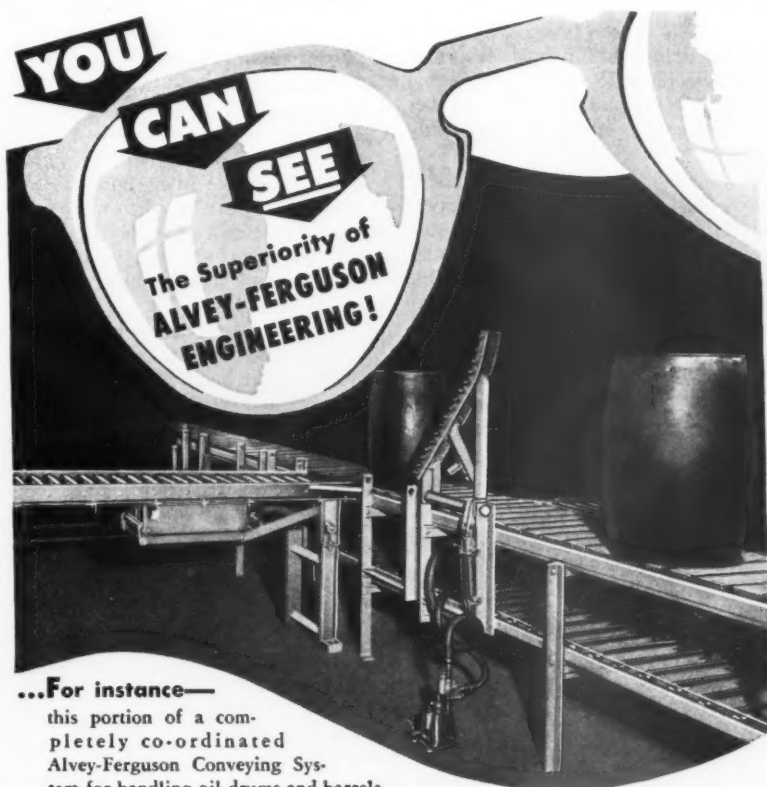
A directive to "clean up" is one thing, but unless it is accompanied by blueprints and a lot of other things there is much doubt that complete waste liquor disposal systems will be in operation in Washington pulp mills 18 months from now.

It is generally accepted that this first directive against the pulp industry by the commission is only the starting point. The smaller sulphite mills, and

the mills using other pulp processes will come next. Then pressure will increase on other industrial and domestic pollution.

Meantime, the pulp industry is enlarging capacity. Newest on the scene is Potlatch Forests, Inc., at Lewiston, Idaho. This topnotch logging and lumber manufacturing firm announced last year that they would go into pulp to get better utilization from their logging, particularly on minor tree species, and also to provide greater all around flexibility. The project is now

Continued on next page



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SEATTLE REVIEW

Continued from page 63

going right ahead. A very active major equipment buying program was in progress right after the turn of the New Year.

Big steel has pretty well stolen the headlines on employee pensions, but in this corner, where lumber is more important than metal, big lumber came up with a pension plan, too. Weyerhaeuser Timber Co., 50 years old this year and largest in the field, has announced that it was offering hourly paid employees a pension "comparable to Big Steel plans." Under discussion for some time, the company-financed plan has now been turned over to one CIO and three AFL unions with which the company has contracts covering about 9,000 employees in its lumber mills, logging operations and pulp plants.

Elsewhere in the lumber industry there was comment that smaller operators, who are not backed with sustained-yield timber areas, would find it difficult to offer pensions. The immediate result of the announced pension plan will probably be the complete nullifying of any strike threat for 1950.

Snow storms and severe weather

greatly curtailed logging in January. The freeze-up also holds the prospect of road closures when the weather moderates and so may further deter logging.

As a result of the cold spell, which brought temperatures near to zero around Seattle and in the minus twenties in central and eastern Washington, power and gas consumption has been record high. In mid-January both City Light and the Puget Sound System reported all-time high peak loads. Bonneville Power Administration also reported a new record for the combined output of Grand Coulee and Bonneville dams.

Gas Demand

The Seattle Gas Co. went dangerously near the crisis point and issued broadcast appeals by press and radio asking customer cooperation to conserve gas. Despite rather recent large expenditures for plant improvement, the company struggled to meet a demand which called for an all-time record "send-out" of gas, which, incidentally, had been enriched with 8.8 per cent more B.T.U.'s.

There is alleviation in prospect for both gas and power for this area. Two pipe lines are headed this way within the next few years—one from Utah

and one from the new-rich oil field of the Canadian prairies. And there's more power coming from the Columbia River, but Bonneville Administration says it will be 1957 before this region really catches up.

Embarrassing Situation

An interesting, confusing, or embarrassing situation has arisen in Seattle, depending on one's point of view. The municipally-owned City Light called for bids on some heavy-duty transformers for 1952 delivery for its new Ross Dam powerhouse. British manufacturers turned in a bid about \$200,000 less than the lowest American firm, which bid \$720,000.

John Bull Says

There has been evidence of much furious behind-closed-doors conferencing. The City is supposed to take the lowest bid and save the people money. The British say that international trade means to buy as well as to sell. At last reports the City had thrown out the British bids on a technicality of specifications, but the British agents, by no means wholly deterred, trotted the case off to Washington, D. C., and there's prospect that we may have an international trade incident of fair proportions in the news of the future.

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Mines Use Tailings For Filling

NEW BRUNSWICK mine at Grass Valley, California, and Central Eureka mine at Sutter Creek have recently developed a method of using tailings from the mill for underground filling. The process involves flushing of the tailings at high pulp density into the sealed stopes of the mine and draining the excess water.

This manner of filling, although not widely used in the past, is not new; however, the batch method which provides absolute control of the pulp density is a unique modification at the local mines. The excellent support provided and the economy of "sand filling," as this system may be called for convenience, have been important factors in the successful operation of these mines during the postwar period of adverse gold economics.

General principles of the system are similar at both properties, but variations of the mining method and especially the physical character of the tailings govern details of best practice in each instance.

Preparation of the pulp is an important step and is accomplished in the agitator tank, wherein the measured amounts of tailings and water are mixed by means of an impeller assisted by air jets. The agitator also controls the slimes. It is not desirable to entirely deslime the material, however, because a certain amount of fines improves the character of the fill and facilitates transport of the pulp.

Flow of the pulp through the pipeline is preceded and followed by clear water to insure that there will be no blocks in the line due to settled sands.

Sealing the stopes, in preparation for the fill is not difficult. Bulkheads, for which light timber is adequate, are constructed where necessary, and floors are laid if required. Burlap, newspaper, or excelsior is used for calking around the floors, chutes, and bulkheads, and if necessary against cracks in the wall rock.

Drainage of the fill at the New Brunswick is through a perforated closed launder wrapped in burlap, locally called a "mousetrap."

At the Central Eureka a flocculant is introduced in the agitator which permits decanting of clear water from a pool formed on top of the fill as it is deposited. Blasting down on the fill is often possible the same day it is placed, and slushers are regularly used for scraping ore over the sand without laying floors.

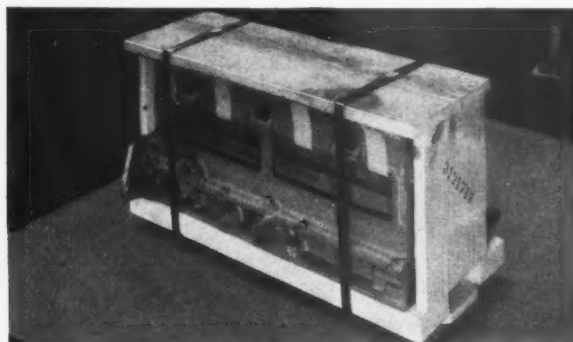
ACME STEELSTRAP can save money for 9 out of 10 shippers

**Read how Nash saved 75%
in crating cylinder blocks!**

Building Nash automobiles involves the problem of moving these blocks safely and economically at the Milwaukee Parts Plant, Nash Motors Division of Nash-Kelvinator Corporation. Acme Steelstrap has helped simplify this operation.

By methods developed by Nash engineers in cooperation with Acme Shipping Specialists, cylinder blocks, for example, are crated quickly but safely at *one-quarter* the cost of the former methods! Methods were developed for other products to produce similar savings.

Similar savings in time, labor, and materials are reported by over 45,000 other users of Acme Steelstrap and Unit-Load Band. Why not find out what these products can do for your packaging and shipping operations? An Acme Shipping Specialist will be glad to make an analysis without obligation. Mail the coupon today for further details.



Crated cylinder block strapped with Acme Steelstrap.

STRAPPING DIVISION
ACME STEEL COMPANY

LOS ANGELES 58 SAN FRANCISCO 7 SEATTLE 4 PORTLAND 9

ACME STEEL COMPANY, Dept. WI 30
4903 Pacific Blvd., Los Angeles 58, Calif.

- ☐ Send free booklet "Savings in Shipping."
☐ Have representative call.

NAME _____

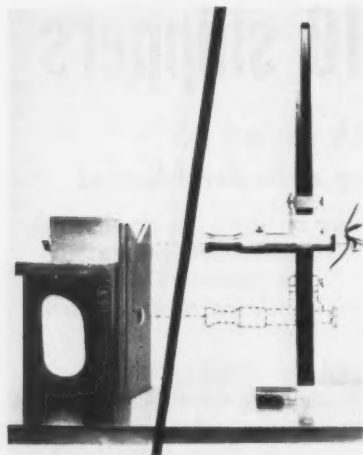
COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

NEW MATERIALS & EQUIPMENT

E-3508



*Height Gage Scope

A new measuring device combining the features of a telescope with a microscope is being produced by *Quality Control Co., Los Angeles*. This instrument, called a "Height Gage Scope," attaches to any 18" or 24" height gage, has 5 power magnification, coated lens, internal focusing, a wide field, and provides an erect image throughout a working distance of 2 1/2" to infinity. It measures dimensions that can be seen but not touched. The dash-lined crosshair will distinguish .001" at two feet, and has a concentric circle for picking up hole centers. Measurements are read directly on the height gage vernier. It is 9 1/4" long, 1 7/16" diameter, weighs 12 oz. No separate attachments, and its case fits into the regular height gage box.

E-3509

*Individual Heat Area

A portable radiant heat panel, known as "Sun-Panel," only 3/8" thick and either 3' x 4' or 4' x 4 1/2', manufactured by *Manufacturers-Engineers Company, Portland, Oregon*, lies on the floor or pavement and warms any object above it according to individual temperature desired. Heat is controlled by a 3-way switch, and this unit may be used indoors or out, on top of or underneath a rug or carpet. Plugs into any 110-volt outlet, and uses 800 watts on "high" (the smaller model) while the larger model uses 1200 watts on "high" heat control. Comes in four

different colors and has a flint-hard surface. No motors or fans employed, and no moving parts other than the switch. An excellent idea.

E-35010

Adjustable Hand Thread Chaser

An adjustable hand thread chaser to restore battered or crossed threads quickly and easily is available from *Owatonna Tool Co., Owatonna, Minn.* This tool takes in diameters from 1/4" to 5", and it comes equipped with six chaser dies that carry 16 thread pitches: 4, 5, 6, 7, 7 1/2, 8, 9, 10, 11, 12, 14, 16, 18, 20, and 24. It is known as tool No. 897.

E-35011

*Sight Savers

That's the name of *Dow Corning Corp.*'s tissues used to clean your glasses. And now they have come out with a new metal wall dispenser that holds a normal month's supply for industrial and commercial use. These tissues are impregnated with a special silicone that gives added clarity and

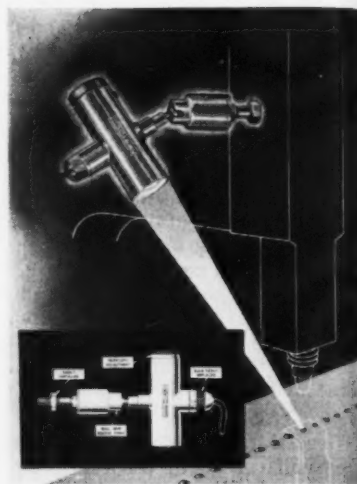


luster to glass, as well as forming an invisible coating that protects the surface and prevents the adherence of most organic materials. We are given to understand, however, that it is not advisable to use such cleaning agents on coated lenses, since the abrasive action of the silicone will wear away the coating material.

FOR YOUR CONVENIENCE . . .

Use this postage-paid card to obtain further information on products mentioned on these two pages and literature listed on following page.

E-35012



*On The Spot Light

This spotlight accurately locates work on all blind operations such as resistance welders, automatic riveters, dimpling and countersinking machines, punch and drill presses, etc. It is easily positioned on a ball and socket joint, and produces a spot of light as small as 1/8" intense enough to be seen clearly under all sharp lighting conditions. Made by *Sciaky Bros., Chicago*, it is sturdy, chrome-plated, has a special lens and operates on 110 or 220 volts, with proper transformer.

E-35013

Drive Blind Pin Rivet

A hammer-driven rivet, the Drive Pin Blind Rivet, is added to the *Cherry Rivet Co.*'s standard line. These rivets are installed by using an ordinary hammer and excellent joints are made in a fraction of the time required for self-tapping screws, solid rivets, or nuts and bolts. This is a two-part assembly, consisting of a hollow rivet member with the hole tapered toward the bottom, and a serrated drive pin assembled part way into the hole. The end of the rivet shank is slit longitudinally by two right angle cuts. A hammer blow drives the pin into the tapered section, expanding the hollow rivet into the hole and then the four sections at the free end are expanded to form a blind head at the back side of the material.

*Items evaluated by Western Industry's technical advisors on basis of information supplied by producer.

Postage
Will be Paid
by
Addressee

No
Postage Stamp
Necessary
If Mailed in the
United States

BUSINESS REPLY CARD

First Class Permit No. 3755, Sec. 94.9, P.L. & R., San Francisco, Calif.

WESTERN INDUSTRY

609 Mission Street,

San Francisco 5, California



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Information Bureau, WESTERN INDUSTRY

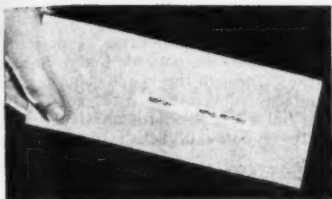
Please send me information or bulletins mentioned under the following key numbers:

_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

Also further information on the following products advertised in this issue:

Name _____	Title _____
Company _____	
Address _____	
City _____	Zone _____ State _____

E-35014



Paycheck Privacy

This paycheck envelope has a glassine transparency placed in position to show only the name and number of employee on the check. Sizes and shapes of these envelopes by *Outlook Envelope Co., Chicago*, are made to meet specifications of the users. Paper in the envelope is positively opaque.

E-35015

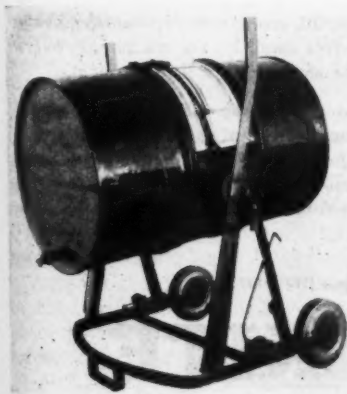
*Pocket Comparator

This is a high-precision optical measuring instrument for inspection of small parts or small dimensions on large parts. It permits the user to compare through a magnifying lens, the part to be checked against a finely calibrated pattern or reticle. Magnification is about 7 to 1. It can be used for checking radii, angles, chamfers, threads, small holes, lineal, radial and tangent dimensions, odd shapes, on machined, stamped or cast production parts. Developed by *Bell & Howell*, and distributed by *National Tool Co., Cleveland, Ohio*.

E-35016

Easy Tilting Portable Drum Rack

An all steel welded portable rack to hold 50 or 55 gallon drums is now produced by *Penco Engineering Co., 725 Second St., San Francisco*. Total weight without drum is 72 pounds, floor space is 31 by 35 inches. Center of gravity location allows easy operation.

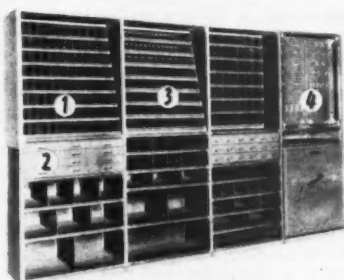


E-35017

Plastic Floor Tiles

Heralded as the first popularly priced plastic tile on the market, these Vinylite 9-inch squares are available in a full range of fifteen marbelized patterns. They combine beauty with resistance to water, grease, acid, alkali, and fire. *Delaware Floor Products, Inc., New York*.

E-35018



Re-Designed Storage Space

Re-designed, complete storage equipment for tool rooms and stock rooms is now available from *Lyon Metal Products, Aurora, Ill.* This unit, made up of some of Lyon's typical storage racks, locates everything conveniently within your reach. It has a sloping front (1) with 88 openings and 8 depths with shelf dividers adjustable every inch. Each drawer (2) has five dividers. The sloping shelf part (3) has 108 compartments on 8 shelf levels. The swinging panel unit (4) allows almost 27 square feet of storage area with holes punched every inch. Other storage units are available, including drill rod units, pigeon hole units, and waste bins for rags and waste.

E-35019

*Power Tool With a Silent Wallop

With the new Drive-It "300," *Powder Power Tool Corp., Portland, Ore.*, introduces a unit with controlled power, whereby penetration of the fastening "pin" can be varied for materials of different densities. This eliminates the need for using three or four different powder charges, and enables the user to gauge accurately the power required for the job at hand. This "300" also features 3-way safety, semi-silent operation, "twist-of-the-wrist" firing (no pushing or hitting), a built-in safety pad, and an automatic extension barrel that enables the user to get in narrow places without special extension barrels.

E-35020

Doodlers' Delight

With this handy note pad affixed to your telephone base you always have the materials at hand to take down important information. A supply of clean



note paper is available by a twist of the wrist. *A. & J. Machine Engineering Co., Long Beach, Calif.*

E-35021

*Magna-Sight Flow Gage

Fischer & Porter (Hatboro, Pa.) Magna-Sight flow gage is completely redesigned into a simple, foolproof mechanism, as illustrated, with flanged or screwed pipe connections. It is available in brass, bronze, iron, steel, and type 316 stainless steel, in sizes



from $\frac{3}{4}$ " to 4" and with maximum capacities from 3.5 to 250 gallons per minute. Minimum capacity is 1/10 of selected maximum. Can be used for clear and opaque liquids, slurries, and other fluids; accuracy averages about 5% over the scale range.

*Items evaluated by Western Industry's technical advisors on basis of information supplied by producer.

HELPFUL LITERATURE

for the plant operator who wants to keep informed

3501-L

HOW CHEMICALS AID THE FOOD INDUSTRY—A new booklet points out the contributions of chemistry to the food industry, from weed control in the field, and leavening in the kitchen, to plastics packaging on the shelves. Booklet is issued by *Monsanto Chemical Co., St. Louis, Mo.*

3502-L

THE CLEANING OF LUBRICATING OILS—"The Modern Way to Clean, Stabilize, Dehydrate and Degasify Lubricating Oils" is a new four-page illustrated bulletin on the dehydration process of *Bowser, Inc., Fort Wayne, Indiana*. The operating principle of this process, case histories and users' names are included in bulletin.

3503-L

CERTIFIED JOB STUDY FOR BOTTLED GOODS PRODUCERS—A Certified Job Study based on dollar savings and elimination of breakage through better materials handling at the *Roman Cleanser Co., Detroit, Michigan*, plant has been made and results published by *Towmotor Corporation, Cleveland 10, Ohio*. Outlined in detail are handling methods which brought many spectacular savings to the company, manufacturers of household cleansers bottled in quart, half-gallon and gallon sizes. Photographs show the handling system that makes it possible for one man to handle 1,200 cases of bottled goods an hour, with breakage eliminated. A 750-case trailer load, which formerly required four men more than one-half hour, is now handled by one man and a Towmotor LT-44 in a record eleven minutes. This speed is made possible through palletizing loads of 50 cases, which are unloaded into the trailer with a standard Towmotor Unloader accessory. No manual handling is used at any phase of the operation.

FOR NON-SKID FLOORS—The makers of Tread-Sure, a plastic brush-coating which produces an anti-skid surface on wood, concrete or steel deck flooring, have issued a four-page catalog describing their product, how it is applied and what it does. Booklet also lists other flooring products made by the same manufacturers, *A. C. Horn Company, Inc., Long Island City, N. Y.*

3504-L

"A GUIDE FOR RETAIL ADVERTISING AND SELLING"—is covered in a publication by the *Association of Better Business Bureaus, New York*, for release early this year. The book is based on ethical business practices, reflecting more than thirty-five years' experience and recommendations of the nation's Better Business Bureaus. Through this "Guide" business can voluntarily cooperate to make good advertising and selling standards effective throughout the country in behalf of the buying public.

3505-L

IMPROVED INDUSTRIAL VISION—A new brochure describing sight conservation programs in industry has just been issued by *American Optical Company, Southbridge, Mass.* Titled "Improved Industrial Vision, a Bonus for Management, a Benefit for Employees," the publication features case histories and charts demonstrating the cost saving values of an industrial safety and visual efficiency program.

3506-L

"WHERE TO BUY"—A new revised membership directory entitled "Where to Buy" has been published by the *West Coast Lumbermen's Association, Portland 5, Oregon*. Detailed information is given on sawmills, remanufacturing plants, timber fabricators, a wood pipe and tank manufacturer, and wood treating plants in the Douglas fir region of Washington, Oregon and Northern California. Thirty-two new operations are listed in this directory which gives a much more exact breakdown of facilities and products manufactured by individual mills than has been possible in previous publications. Included are complete addresses of mills, sales offices and officers, production capacities, manufacturing and shipping facilities, and percentage production of each species.

3507-L

CLIPPER BELT LACER COMPANY—In over 30 years experience manufacturing belt lacing equipment exclusively, Clipper has developed the world's finest belt hooks. To get the best service from these top quality hooks apply them with a modern belt lacer such as the Clipper No. 9 Portable. This combination will save you money. See your Mill Supply Jobber for demonstration.

You'll Save 30%* or more by using only GENUINE Clipper Belt Hooks with Modern Clipper Belt Lacers

*TIMKEN ROLLER BEARING CO. AND OTHERS EFFECT THIS SAVING IN BELT LACING COST

In over 30 years experience manufacturing belt lacing equipment exclusively, Clipper has developed the world's finest belt hooks. To get the best service from these top quality hooks apply them with a modern belt lacer such as the Clipper No. 9 Portable. This combination will save you money. See your Mill Supply Jobber for demonstration.



**No. 9
Portable Lacer**

CLIPPER BELT LACER COMPANY, GRAND RAPIDS 2, MICHIGAN

Clipper

BELT LACING EQUIPMENT

Clean big parts with the OAKITE STEAM GUN!



HERE'S a simplified, low-cost way to clean parts that are too large to be soaked in tanks or conveyed through washing machines. Use the Oakite Solution-Lifting Steam Gun to apply an Oakite cleaning solution under about 40 pounds steam pressure. Oil, grease and dirt vanish quickly . . . leave parts in perfect condition for machining, overhaul or repair. Use the same gun for paint-stripping.

Get more information about the various models of the Oakite Solution-Lifting Steam Gun and the many cleaning operations on which they may be used to advantage. Send today for illustrated booklet F7338. Oakite Products, Inc., 1001 E. First St., Los Angeles, Calif., or 681 Market St., Oakland, Calif.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

Copy—The Core of Advertising

By Aesop Glim, McGraw-Hill Book Company, New York, 1949, \$3.00.

When you grab hold of a wire loaded with electricity you have a tough time breaking the contact. Once you get a grip on this new book on advertising you're going to be jolted right into reading it from high voltage cover to cover. That is if you are: (1) A beginner in advertising looking for a guiding beacon. (2) An old advertising hand with a "young mind." (3) A wise business man who thinks he should know something more than he does about advertising.

You are not going to find anything really new and startling here. It's probably because you do not find anything new and startling that makes you realize that fundamentals are a whale of a lot more important than the usual drive of an adman to come up with something "new and different." Unlike the unanswered question of "which came first the chicken or the egg," author Glim leaves no doubt in your mind that copy is the guts of advertising.

To reach the guts Mr. Glim carefully prepares his case to show that good copy writers are loaded with knowledge about what motivates people, the problems of salesmen, fact-finding and analysis, all of which come long before the typewriter starts beating out copy that sells.

Glim does take a long time to tell you that everything is grist for the advertising man's mill. But he does it on purpose in order to drag back into the veteran adman's myopic vision, and to focus the visionary beginner's eyes, on many of the things that are too easily overlooked. And one of these overlooked principles is something Glim calls "the ignorance-distance,"—the lack of knowledge or indifference of prospects about a product or service. Absorbing something about this ignorance-distance is going to produce better copy writers and more advertising that will produce better returns for an advertiser's buck.

Author Glim throws the full weight of his thirty years as an advertising executive into his latest book. His diatribes have appeared regularly in *Printers' Ink* for many years. If you liked them you are a cinch to like 245 meaty pages of him.

Mr. Glim voices our sentiments

when he hopes that "most of the time Advertising is the horn of the honest peddler and not the callopie of the racketeer's limousine."

Reviewed by:

AUBREY C. MENDLE
Lecturer in Advertising.

Is Your Publicity Showing?

By Alice Partlow Curtis, International Textbook Company, Scranton, 1949, \$2.00.

If you are the publicity chairman of your fraternity, garden club, P.T.A., cub scout organization, sorority, or even a small business, here's a book that has all the answers.

A "handbook for the nonprofessional publicity chairman," it tells you how to get your organization's story in the newspaper, how to get and stay on good terms with the editor, how to write your story, how to get publicity on the air, what to do on television, and gives many fresh ideas on getting your club's name in the public eye (and ear).

Cleverly illustrated, simply and interestingly written, this little 200-page (plenty of white space) volume makes tremendously good sense. It probably will find its greatest support coming from the newspaper editors themselves, because if you follow the advice of the author, it will save those overburdened individuals time and worry.

Professional advertising and public relations people will find very little to match their ideas of high-powered publicity methods. But for the amateur (Helen Hokinson chairwomen keep popping into mind—though for no good reason) it will probably be a Godsend.

Reviewed by:

BROOKS DARLINGTON
Lecturer in Public Relations

Briefer Guides From The Management Library

Handbook of Personnel Forms and Records

By Eileen Ahern. American Management Association, New York, Research Report No. 16, 1949.

This report consists principally of reproductions of forms currently in use in every major activity of personnel administration. The narrative sections emphasize the content of each type of form, bringing out the objectives of the particular activity and the principles governing its administration.

Effects of Depreciation Policy

National Industrial Conference Board, New York, Studies in Business Economics, No. 22, 1950.

The rising price level that has prevailed since the war has brought into sharp focus the disparity between industry's depreciation charges and its replacement requirements. This study reviews the history of depreciation practices in this country and abroad, and analyzes the implications of adopting such proposals as the use of replacement costs or some form of accelerated depreciation.

The Corporation in New Jersey

By John W. Cadman. Harvard University Press, Cambridge, Mass., 1949, \$6.00.

By the end of the nineteenth century New Jersey had become notorious as the most liberal incorporating jurisdiction in the United States. In this book, the author presents both a general survey of public policy toward business corporations and a specific analysis of the terms of charters granted.

Successful Pension Planning

By Arthur J. Meuche. Prentice-Hall, Inc., New York, 1949.

Today, many companies are facing for the first time the problems connected with selecting and installing a pension plan. This booklet presents ten basic questions which should be considered before a type of pension plan is chosen.

Employee Recreation Activities—Administration and Cost

National Industrial Conference Board, New York, Studies in Personnel Policy, No. 102, 1949.

What support should a company give to employee recreation activities? Most such activities have developed without definition of company policy. This study provides material on company experience that may be helpful in answering this question of policy. It is based on a survey covering practices in 264 plants and offices.

Labor Leaders and Society

By A. A. Imberman. An article in *Harvard Business Review*, January, 1950, issue.

The author believes that the psychological drives of union leaders are instrumental in determining union actions. As long as management fails to account for the personal social aspirations of these men, it will continue to be frustrated in its attempts to achieve a satisfactory working relationship.

Reviewed by:

BERNA M. CARLSON
College Librarian.

REGIONAL REVIEWS

The Columbia Empire

Good Times Looked for After The Cold, Hard Winter

Portland's building permits reach all-time high. Heavy unemployment loads due partly to shut-down in lumber operations caused by weather

PORTLAND — Frigid, icy weather had much of the Pacific Northwest under wraps during the early part of 1950, boosting unemployment claims to new levels, cutting into industry production and causing temporary power reductions to some industrial areas.

Retail trade, too, suffered the onslaught of wintry blasts and merchants looked hopefully toward mod-

erating temperatures which would again open up consumer channels.

But even so, there still was much optimism from many industry spokesmen. They pointed to an expected extremely busy spring, when all projects held back because of adverse weather will blossom into full swing.

Taking the pessimistic spotlight during the current period was Oregon's growing unemployment problem, brought on principally by the

weather, plus the continuing steady influx of new workers in the area.

With several mills and plants unable to operate full time because of icy conditions, the state unemployment compensation commission reported January benefit payments totaled \$4,273,653, an all-time high. Previous monthly high was \$4,166,215 in March, 1949.

January payments topped those for November by 52 per cent and were 54.8 per cent higher than the record for January, 1949.

Local Load Rises

The local office claims the load has been rising steadily since the year end at the rate of 6,000 a week. And officials expect still higher payments through March, particularly if bad weather continues. The commission estimates that nearly 92,000 persons in Oregon are seeking jobs.

Nearly 80 per cent of the 20,000 new claimants for unemployment benefits came from manufacturing and construction, although all sections of the state contributed to the increase.

Oregon's timber industry alone accounted for 55 per cent of the layoffs and for more than one-third of those receiving compensation during the early part of the year.

Portland Not So Bad

Although more than one-third of the state's labor force is concentrated in the Portland area, that section accounted for only one-seventh of the post-holiday increase in unemployment, the commission reported.

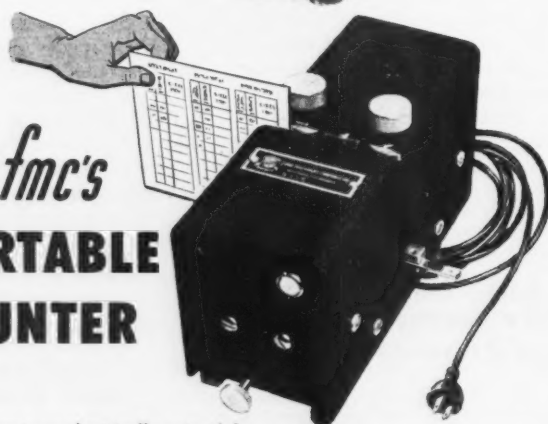
On the brighter side is a cheery note from the construction industry. Even though actual work has been stalemated, building permits in Portland during January reached an all-time peak of \$6,359,370.

When you take a
printed reading ...

30	100	00000
40	120	00021
50	140	00021
60	160	00021

it's right!

with *fmc's*
**PORTABLE
COUNTER**



Here is an electrically-actuated printing and recording counter that plugs into any 110-volt electrical outlet; can be used with any contacting device; counts up to 600 units per minute; may be used with photo-electric relays. Larger multiple units employing the same counting and printed recording principles are also available. **Write for Bulletin 121.**



FOOD MACHINERY & CHEMICAL CORPORATION
Packing Equipment Division Riverside, California

M-4A

The heavy drag on the Northwest power pool continued during the extreme cold period but normal frequency of 60 cycles was maintained except during peak load hours, according to Bonneville power administration officials.

More Juice

Part of the reason Bonneville is in better shape this year than last is that new generating facilities have been installed at Merwin dam, Grand Coulee and other points. A voluntary "brown out" in the Portland area has had some effect, particularly during peak hours when many users have cut down on electric heating and lighting.

Construction Project

Further easing of the power situation in parts of Oregon is promised with construction of the Goshen substation, an important part of Bonneville transmission facilities planned for energization next October. Bids have been invited on the project, which will be located near Eugene.

Another step in control of the spruce budworm problem in Oregon and Washington has been taken with a request to congress for \$880,000 to be used for forest pest control work.

The Cost of Worms

The request will be studied by a house appropriations subcommittee. Funds, if approved, will cover all costs of the spray program for national forest land and half the cost on state and private land.

The figure of \$880,000 was set by forest service officials after conference with interested groups last fall.

Stock for Sale

Attracting much attention in the northwest area is American Power and Light Company's application to sell its 500,000 shares of common stock of the Oregon-Washington utility.

The Securities and Exchange Commission recently decided to permit sale of the stock to an underwriters' syndicate headed by Bear, Stearns & Co. for a cash bid of \$16,125,000.

The question of public power versus private power has come to the front, although the issue was never a material factor for SEC purposes. There are those who are openly fearful that sale of the stock to the syndicate would result in the ultimate sale of Pacific's physical assets to public utility districts.

It seemed to most observers, how-

ever, that possibility of such a sale is more limited with the stock in the hands of the Bear, Stearns group than it would have been had bids of some other groups been approved.

There seemed little doubt, however, that if such sales are made they will be made in the main to public utility districts, but there is some possibility that other portions of the property may be offered to private concerns, such as Portland General Electric Company.

An interesting indication of the area's economic life has been revealed by Portland's official housing survey committee.

Incomes in Portland

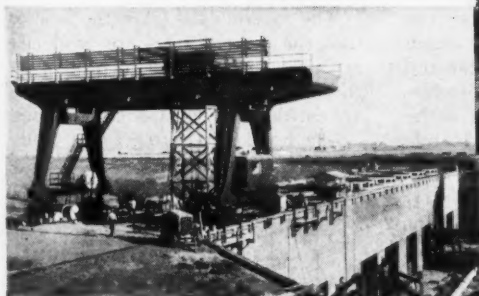
Half the families in the Portland area earn more than \$3,333 a year, the report states. This income is slightly higher than Seattle's median of \$3,288 set in its 1948 survey, and considerably above the \$2,616 established by Vancouver, Washington, in its 1947 study.

In all instances the figures represent the income of a family, not just one individual. The committee report shows that 58.8% of 151,683 Portland area families earn more than \$3,000 annually and almost 20% receive \$5,000 or more.



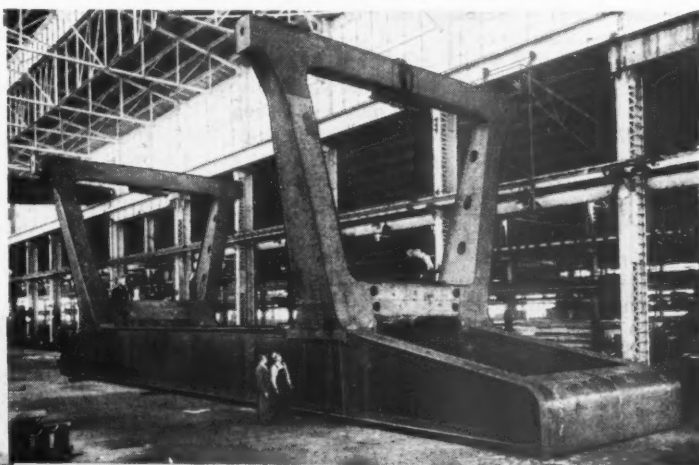
100 TON TRAVELING CRANE

FABRICATED AND SHOP ASSEMBLED FOR PERFECT ALIGNMENT



Fabricated for assembly at U. S. Bureau of Reclamation Pumping Plant, Tracy, Calif.

ONE OF OUR MANY SPECIAL STEEL FABRICATION JOBS



CALL ON INDEPENDENT FOR IMMEDIATE WORK OR CONSULTATION ON FUTURE PLANS

Fabricated Structural Steel • Tanks • Bridges and Towers • Barges and Dredges • Service Stations and Equipment • Plate Work • Steel and Sheet Metal Products • Steel Erection • Truck Tanks • Jobbers of Steel Shapes, Bars, Plates, Sheet Metal



REGIONAL REVIEWS

The Wasatch Front

Both Hope and Danger Lie Ahead For Nonferrous Metals

Mine aid, plus upturn in zinc and lead prices, are favorable omens; repeal of silver purchase act and depletion allowances not so good

SALT LAKE CITY—The nonferrous metal mining industry, exclusive of open pit copper operations, is in a quandary.

Ahead are two gleams of hope, but overhead are two menacing swords. The hopes are: (1) enactment of the O'Mahoney mine aid bill, or some similar piece of legislation, by the present Congress and (2) an upturn in lead and zinc prices. The swords are the demand of the joint Senate and House economic committee for repeal of the silver purchase act of 1934 and the proposal by Pres. Harry S. Truman that the mining depletion allowance be reduced or eliminated.

Either repeal of the silver purchase act or a substantial reduction of the depletion allowance would more than offset anything that could be accomplished for the industry by the mine aid bill. And if both swords fell it would be curtains for the deep mines, with few if any exceptions.

In Utah two of what are regarded as the best deep mines in the state have been shut down for several months because of inability to keep income above outgo. Others are operating on a reduced scale and none can be described as flourishing.

That is the picture under existing conditions. If the silver purchase act were repealed, according to mining executives here, the free price of silver would drop from 73.25 cents per ounce to about 55 cents. Such a decline in 1947-48 would have reduced the income of four Park City and Tintic district mining companies by \$951,667. And with such a drop in revenue from silver only one of the four would have shown a profit in 1947 with lead-zinc prices at a record high. The one company which could make a profit would have been less than \$25,000 in the black.

The effect of a depletion allowance reduction would of course depend upon the depth of the decrease.

Mining people have become accustomed to the introduction of bills to repeal the silver purchase act. But such a recommendation from the joint economic committee suggested that there might be more to it this time than an habitual gesture. And Sen. Paul Douglas' remark that there were only 16 reasons for the legislation (16 senators from mining states) has created more than a little apprehension.

The producers of complex silver-lead-zinc ores, incidentally, resent the government silver purchase price of 90½ cents per ounce being referred to as a subsidy. To them it represents a deal whereby the government makes a handsome profit from their silver. By issuing \$1.29 in silver certificates against 90½-cent silver the government makes a profit (after deduction of certain costs) of about 31 cents per ounce.

But subsidy or not, it isn't an out-of-pocket subsidy which adds to the unbalance of the budget.

The industry in some of the other states, notably Idaho, would be even harder hit than Utah mines by repeal of the silver purchase act. In Utah and Arizona (and to a lesser degree in Nevada) open pit copper mining is the big slice of the industry. And while silver provides some revenue to these operations it doesn't represent the difference between a profit and a loss. But in Idaho virtually all the mines are of the complex ore variety or primarily silver producers.

A modest but potentially important test of the economic feasibility of extracting petroleum from eastern Utah's enormous asphalt ridge is being carried on in a pilot plant located near Vernal, Utah. The enterprise is being financed

by Salt Lake City and Vernal interests.

The latest approach to the extraction problem, which has defied solution thus far, is reportedly based on use of water and solvents at high temperatures. The solvent is added to the petroleum bearing sands and water run through that solution to take out the solvent-petroleum mixture.

Depth of the sand on the ridge varies from 90 to 130 feet and it could be taken out at low cost through open pit mining methods.

Utah industry, which has become accustomed, if not resigned, to the one-way (upward) movement of taxes has been promised a reduction by Gov. J. Bracken Lee. The promise involves industrial insurance rates of the state insurance fund.

An accounting firm, which recently audited the fund, pointed out that during the first 23 years of operation a surplus of only \$384,960 was built up. But during the past nine years this has been increased ten-fold to \$3,853,749. The surplus does not include the reserve for compensation and medical benefits totaling approximately \$2,000,000.

The governor has taken the position that the present rates are producing far more than enough to protect the fund's solvency and that the insurers are entitled to a substantial reduction.

The hope of Wasatch Front industrialists, and householders, of getting more natural gas from the Church Buttes field in Wyoming has received another setback. A deep test well, which officials of the Mountain Fuel Supply Co. were hopeful would turn out to be a substantial producer, is a failure. At present there are no tangible hopes for lifting or modification of the gas "freeze" which was imposed by the Public Service Commission at the beginning of the heating season.

Western Rural Families List Home Preferences

The average western rural family prefers a one-story home with basement, either a screened or glassed back porch, a covered area for drying clothes, a kitchen with dining area, a dining room and centralized sewing and laundry accommodations.

These are the preferences indicated in a survey of 902 farm families in the 11 Western states conducted by the Western regional committee for the study of rural housing, of which Miss Maude Wilson, head of home economics section of the Oregon State College experiment station, is a member.

Eighty-six per cent of the houses surveyed had electricity. Eighty per cent had some sort of plumbing and 50 per cent had telephones.

The committee, set up under the research and marketing act of 1946 to study functional requirements of rural housing in Western states, will use the survey information in making recommendations for future studies and data in house plans.

Pine Siding With Clear Veneer Facing Developed

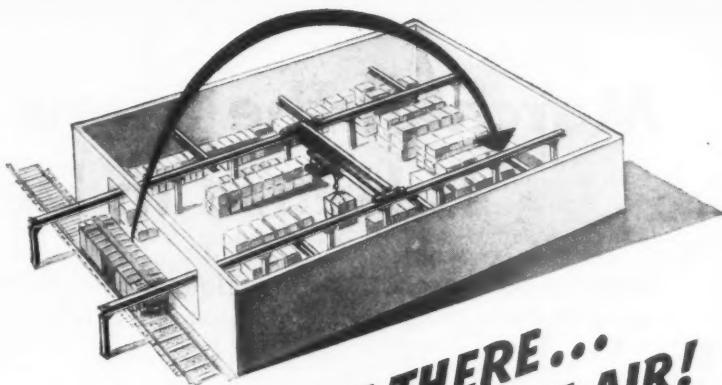
Western Pine Association's research laboratory is currently attempting to produce marketable siding by overlaying low grade common lumber with a clear veneer facing. Carl A. Rasmussen, lab head, says initial results indicate the product will be stronger, lighter and equally as economical as present solid lumber pieces. Successful development will also make pine siding more available to a great number of builders.

Rasmussen also disclosed that technicians are working on a second approach to upgrading by trimming defects from common boards, then edge-gluing clear pieces into panel forms. Key to success of the project appears to lie in developing standard trim sizes and a practical routine for economical handling.

The lab expects to complete studies in March on log end coatings to limit development of blue stain and end checks in the logs during storage. Blue stain, which develops in green lumber during warm months but does not affect the wood's use properties, is not considered desirable by lumber buyers. End checks must be trimmed off.

Other laboratory projects include the development of a non-darkening clear finish for wood, utilization of mill waste, nailing techniques, basic stress studies, kiln drying methods and fire retardant finishes.

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REGIONAL REVIEWS

Continental Divide

March of the Screw Machines Is Heard in Denver

Another good proof that industrialization is putting on long pants. Montana Power Co. becomes "independent," which may mean considerable

DENVER—The Rocky Mountain region is coming of age industrially, and anybody who doubts it is invited to drive down under the 20th Street Viaduct a few blocks from Denver's Union Station to see what goes on at the Screw Machine Products Company.

Here is a manufacturing plant for manufacturers—a place that has nothing to sell the public and no products identifiable by its own name, but it turns out myriads of small machined products which go into the assembly of a great variety of manufactured products. Small and middle-sized manufacturers of the Rocky Mountain area—including some as far away as Hastings, Nebraska—are getting parts manufactured to their specifications by Screw Machine Products Company.

During the recent war, this plant was kept busy night and day turning out parts for Douglas Aircraft, Consolidated, Vultee, Boeing and other companies that were up to their ears in rush war jobs. As subcontractor for Wells Aircraft Parts Company of Los Angeles, Screw Machine Products of Denver handled production jobs that called for big volume as well as for utmost precision and uniformity. Other work was done by the Denver firm direct for the Navy, Army and merchant marine.

Help Small Manufacturers

However, the significant thing about this plant is its role in helping small manufacturers of the mountain and prairie states. Some of these know exactly what they want and how it should be turned out. Others are over their depth when it comes to mass production processes and need expert engineering assistance when it comes to

converting an ingenious gadget into a modern machine tooled product with interchangeable parts. Working out production methods to keep costs to a minimum is of critical importance to small manufacturers, who might otherwise find themselves launching their products on a needlessly high-cost basis that would put them out of the running as soon as somebody with modern engineering and equipment entered the market competitively.

Able to Compete

At first it was feared that the Denver-made products would be doomed to higher prices and less than top-notch quality and uniformity, but repeated tests by manufacturers have demonstrated that the Rocky Mountain product stands up against competition from Los Angeles, Chicago and other metropolitan screw machine companies.

Walking through the plant, where batteries of six-spindle automatic screw machines are turning out a wide variety of products in steel (including stainless and alloys), aluminum, brass and plastics, you get the conviction that manufacturing finally is hitting its stride in the Rocky Mountain West.

You see parts being made automatically for the world-famous Redfield gun sight and the equally-noted Perfection Tip for fishing rods. Denver's important sporting goods manufacturers have given Screw Machine Products Company many of its most valued assignments, and it, in turn, has helped them to worldwide success.

Heiland Research Corporation's famous photoflash equipment . . . Franklin Serum stockman's tools . . . parts by the tens of thousands for a national carburetor maker . . . special

rivets for rebuilt clutches of Clutch Exchange, Inc. . . . several machines busy reworking shock absorber parts for General Motors cars and trucks . . . hundreds of individual problems of manufacturers large and small, worked out in this plant.

Many of the gismos and gadgets being turned out by Screw Machine are for products still little known, but destined to win national and international prestige as surely as Dr. Heiland's photoflash gun or Dewey Wilkerson's automatic valve for removing moisture from compressed air lines or the Quickway Truck Shovel or Redfield's gun sight. . . .

Yes, this plant is a revelation that demonstrates a significant development in the industrial potential of the mountain states area. It proves that the region finally has outgrown that stigmatized term: *hinterland*. You're right—the West is on its way!

Absentee owners are losing their grip on the mountain states, slowly but surely. The people who live and work in the area gradually are taking over the ownership and control of their resources, which used to be very largely in the hands of a few large corporations and individuals to whom "the Rockies" was only a backward province to be exploited.

Montana's Montana Power

The reorganization of the Montana Power Company is the latest among the significant changes of ownership in a long series—many brought about, like this one, by the Securities and Exchange Commission in carrying out an act of Congress passed during the early years of the New Deal. The newfound independence of the Montana Power Company won't hurt it a bit, if the experience of the Public Service Com-

pany of Colorado is any indication.

(Since we mentioned the Colorado company, you might as well know its net income last year increased by 17.5 per cent and it has upped its five-year construction program from an estimated \$70 millions to \$83 millions. Not exactly suffering. . . .)

Montana Power Company long has been affiliated with American Power & Light Company. While its management has striven to give it the semblance of a home-owned enterprise, the facts were widely known. Common stock of Montana Power Company has been distributed to more than 30,000 holders of preferred and common stock of American Power & Light Co. Montana Power will emerge with about 10,000 preferred stockholders, 70 per cent of them Montanans. There will be many Montanans among the 20,000 to 30,000 common stockholders. The company has Montana men as officers and directors, and while the heavy part of the ownership will continue to be outside the state, the company will be relatively free to paddle its own canoe.

How Can They Miss?

Since Montana Power Company is firmly entrenched with a goodly share of the physical assets of "the treasure state" there isn't much doubt that it will do quite well, thank you. If you had your pick between the Montana property owned by the state's 600,000 people and the Montana property owned by just four corporations—Montana Power, Anaconda Copper, Northern Pacific and Great Northern railroads—you'd be wise to take the latter, or so it seems to one who has spent many years living in that state. It is too early to tell whether the "independence" of Montana Power Company has altered this situation, but it seems to be exactly what it appears on the surface, a move to give the company autonomy and, perhaps, a smaller measure of absentee ownership.

Lufkin Indian Lands

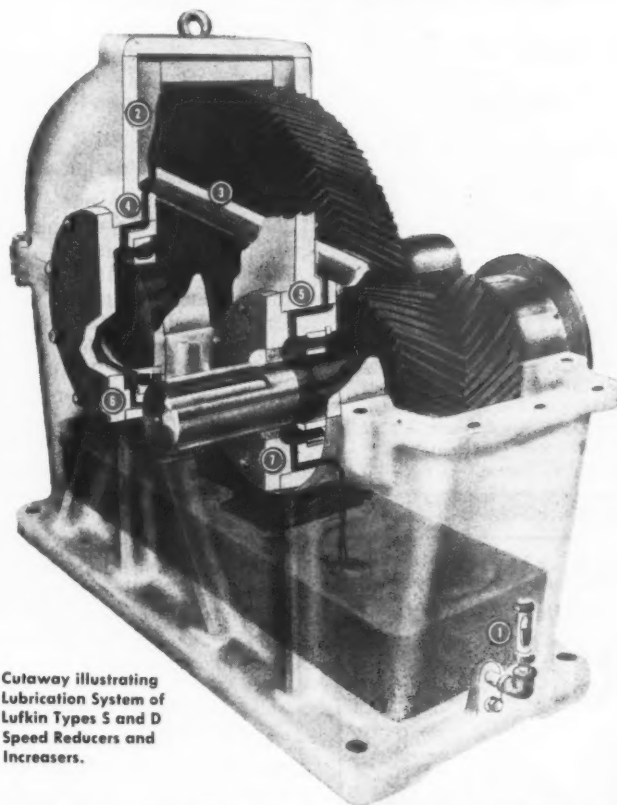
Manitou, the great god of the Indians, is a hard character to outsmart. Time after time the white men have shoved the Indians out of land that proved to have some value for agriculture, minerals or tourist bait, only to discover that the god-forsaken spot they shoved the Indians into turned out to be a bonanza.

Oil Again

It keeps happening, and the latest is the luck of the impoverished Jicarilla Indians of northwestern New Mexico. They're offering oil leases now, near

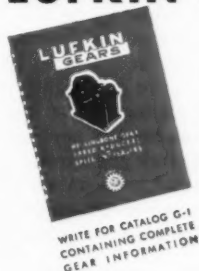
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DENVER REVIEW

Continued from page 75

the Lindreth well which proved to be one of the nicest discoveries of 1949, opening up production on the eastern rim of the San Juan Basin in what was real wildcat or virgin territory.

The Jicarilla are a branch of the Pueblo people who used to live on the eastern slope of the mountains, and it is high time they had a bit of good luck. It looks as if the Navajo, despite their present poverty, will share handsomely in the wealth of oil and gas beginning to be developed in the "four corners" country where Arizona, New Mexico, Colorado and Utah meet at a common point.

About the Indians

Speaking of the region's Indians and their share of the region's wealth in natural resources, it seems somewhat peculiar that the Uinta Basin where the greatest oil wealth of Colorado and Utah are concentrated happens to belong (largely) to the Ute Indians. Likewise, the great Wind River Basin oil country of Wyoming belongs to the Shoshoni and Arapahoe Indians, and Montana's greatest oil fields are on Indian lands in the northern part of the state. One still to be developed is the Crow Indian reservation, in southern Montana, which may prove to be as productive of oil and gas as other parts of the Big Horn Basin and Powder River Basin. Maybe all we need to do to find oil is to find some Indians and drill on their land!

Not So Dreary

Here and there one finds indications that all is not so bad as the papers might lead you to think. The wool business, for example, is shrinking and shrinking but the price of wool is going up, the foreign wool that has knocked the spots out of the market for years is pretty well used up, more people than ever are demanding wool clothing, and—perhaps most important of all—shepherders now can be found who will work for a mere hundred a month and keep, rather than the \$150 they demanded during the worst of the man-power shortage.

The Mining Industry

Then there is the mining industry. Despite their sorrowful complaints, some of the gold mining people have gone right ahead doing development work, opening up and blocking out new ore bodies and otherwise getting set for large-scale operations. There isn't a bit of sense to it, they'll tell you, unless they can sell their gold in the

world market or get a much higher price from Uncle Sam. Yet they go right ahead, getting jigged up for huge output—are they crazy, or who?

Cheerful Obits

And the metal mining people, those who produce the baser metals which are so precious when there's a war on—here again we find the usual picturesque obituaries the industry's leaders are always writing, but underneath is a sense of progress, almost triumph. They haven't yet won their stockpiling plea, which seems their only immediate hope of salvation. There isn't a chance of higher tariffs on metals produced in foreign countries (mostly by American companies), since the whole government is sold on the idea of boosting world trade rather than constricting it by tariff walls.

Could Be, Though

The industry isn't above mentioning that it would accept a direct subsidy, as a last resort, but it isn't anticipating that sort of windfall. Perhaps the reason for the cheerfulness on the part of the metal mining people is the ominous drift of world events and the ever-greater likelihood that another world war is shaping up. Undoubtedly, a war would fix up the metal mining industry fine and dandy—at least on paper. We won't dwell on the disadvantages of communicating with home offices in New York, after that city has been demolished by one or a dozen modern bombs. And we won't discuss the handicaps one might encounter in operating mines for the government when a few well-placed bombs have eliminated all of the government's key executives (down to head janitor in the Pentagon, who chanced to be in the fourth sub-basement looking for something) when it all began, and ended.

Pike Publication Wins Freedom Award

The Monthly Tour, a house organ published by Thomas P. Pike Drilling Co., Los Angeles, won an honor medal awarded by Freedom's Foundation, Inc., an organization headquartered in Valley Forge, Pa., that makes yearly awards for the most outstanding jobs toward bringing a better understanding of our American Way of Life.

Harold Stassen, president of University of Pennsylvania, is chairman of the judging committee. Reese Taylor, president of Union Oil Co., presented the medal at a meeting of Freedom's Foundation, held under auspices of the Advertising Club of Hollywood.

THE WEST ON ITS WAY

ALASKA

PROPOSED CEMENT PLANT SITE—Negotiations are under way between the Army and Permanente Cement Company for a harbor area property for its proposed \$250,000 bulk cement plant as an alternate site. Reported interest in a 17-acre site which the city of Anchorage has been attempting to obtain from the Alaska Railroad had been made by the company. The long-awaited lease of the harbor acreage promised by federal authorities has not yet been received by the city. The property would be used as a site for the commercial plant and a boat harbor.

NEW CANNERY SETUP—All properties in Central Alaska and the westward, of Whiz Fish Co., Seattle, and G. P. Halferty Co., also of Seattle, are now conducted under the newly-organized firm of Whiz-Halferty Canneries, Inc., Seattle, formed for the purpose of more economic operation. Whiz has two canneries—one at Kodiak and one at Prince William Sound. Halferty has a cannery at Prince William Sound. Halferty will supervise clam canning and control all clam sales; salmon will be packed at all the plants and then split between the two parent firms. Officers of the new firm are: G. P. Halferty, president; Charles Alhadeff, vice-president; I. N. Alhadeff, secretary; and H. H. Horchover, treasurer. General superintendent is Frank McConaghy.

ARIZONA

OUTSTANDING SAFETY FIGURE—Arizona mining industry reported only four fatalities during 1949. This safety record was the most outstanding in the state's mining history and particularly interesting in view of the fact that mining has long been classed as one of the most hazardous of industrial occupations. This figure compares favorably with 18 fatalities in 1948. Steadily improved mining and safety practices, rigid state requirements for safety standards and training of mine workers contribute heavily to this fine record. Two of the fatalities occurred at the American Smelting and Refining Company operations as the result of dynamite explosions; the third at the Magma Copper Company, resulting from falling rock; and the fourth at the Skyline Mine from a miner's falling.

CALIFORNIA

\$1,000,000 CONSTRUCTION JOB AT FULLERTON—American Fruit Growers, Inc., Los Angeles and Eadington Fruit Co., Fullerton, announce formation of Golden Citrus Juices, Inc. at Fullerton, for production of frozen citrus concentrates. Construction begins immediately on the \$1,000,000 modern juice plant.

\$400,000 EXPANSION APPROVED—Approval of a \$400,000 expansion in equipment at the Ontario plant of Exchange Orange Products Co. is announced by California Fruit Growers Exchange. This is in addition to a \$175,000 program announced last fall. New concentrating equipment for a juicer, new canning line, pulp prior and freezing equipment are included.

\$200,000 CHEMICAL EXPANSION—Hancock Chemical Company have plans under way to expand at an approximate cost of \$200,000, which expansion will double the size of the stripping section.

SAN LEANDRO SITE—Workman Packing Company, specialty packers, plan to move to new and larger quarters in San Leandro within a short time. The 35,000 square foot structure, planned for the most efficient operation, is headed by Gibson M. Gray.

\$5,000,000 RESEARCH CENTER—Ground has been broken by Union Oil Co. of California at Brea for a new \$5,000,000 research center on a 100-acre site. The center is expected to be completed by July 1951 and have an annual budget of \$2,000,000 of which 65% will be earmarked payroll for 280 employees.

CONVEYOR PLANT ESTABLISHED—Jervis B. Webb Company of Detroit, Michigan, conveyor engineers and manufacturers, are now established in their new fully equipped manufacturing plant at 2650 E. Washington Boulevard, Los Angeles 23. Factory trained technicians are on hand to help industrialists with their materials handling problems.

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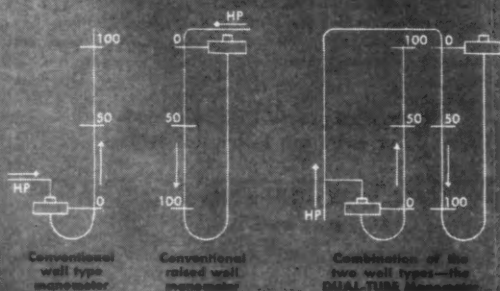
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THE WEST ON ITS WAY

OIL, PROCESSING PLANT BURNS—U. B. Bray Oil Company, Los Angeles, suffered fire damage estimated from \$25,000 to \$50,000 when thousands of gallons of lubricating oil went up in smoke.

\$1,000,000 FIRE AT CUCAMONGA—Fire destroyed a storage building containing 1,500,000 gallons of wine at the Cucamonga Pioneer Vineyard Association, causing the death of one man. Estimated damage was set at \$1,000,000.

ACQUIRE CARGO DEVICE—Manufacturing and distributing rights, plus tooling and inventory, of CJW Corporation of North Hollywood in the Load-Set Weblock acquired by Gordon D. Brown and Associates, Los Angeles. A tie-down device for cargo claimed to be superior to rope. Edwin C. Elsner, president of CJW and inventor of the device, joins the Brown company in charge of design section. New division of Brown organization set up to market the device, with Wilbur L. Horton in charge.

COLORADO

U. P. TO SPEND \$23,000,000—An additional 645 shop men will be employed in the spring when Union Pacific Railroad plans to spend approximately \$23,000,000 in a freight-car acquisition program, which will include the purchase of 1000 gondola cars and the building of 3000 box cars. 500 stock cars will be built at Denver.

LUMBER COMPANY BURNS—East Denver Lumber Company suffered fire damage estimated at several thousand dollars when flames burned through one wall of a wood processing shed and destroyed several planing machines and stores of processed lumber. Cause of the fire was not immediately learned.

PHILLIPS PETROLEUM EXPANDS—Phillips Petroleum Co. announces plans to extend to Denver its present 200-mile pipe line now in operation between the company's plants at Phillips, Texas and Lajunta, Colorado. Construction at Denver of storage tanks to handle millions of gallons of gasoline and liquefied petroleum gases will be undertaken. Completion of the project this year will enable more than 8000 barrels of petroleum products per day to be moved from the refinery in Texas to Denver.

RADIO PROPAGATION LABORATORY SITE OK'D—Approval for the development of a site at Boulder, Colorado, for additional National Bureau of Standards laboratory facilities has been given. The site, to be used initially by the Bureau's Central Radio Propagation Laboratory, consists of about 210 acres, directly south of the city and close to the campus of the University of Colorado, and is to be dedicated to the Federal Government by the Boulder Chamber of Commerce. The National Bureau of Standards expects to erect laboratory facilities at Boulder for research in radio propagation at a cost of about \$4,500,000. It is expected that actual construction work on the radio laboratory will start at Boulder during the summer of 1951. When it is completed a research staff of about 300 people will be employed there. Most of them will be transferred from the present staff in Washington.

IDAHO

AEC CONTRACT NEGOTIATED—Contract negotiations have been completed for survey work at the Atomic Energy Commission's nuclear reactor test station near Arco. Crews of Consulting Engineer R. F. Hamilton, Pocatello, Idaho, and E. B. Steele, Arco, are handling the survey work.

FOUNDATION POURED—Pouring of concrete footings for the building that will house an experimental breeder reactor begins at the Atomic Energy Commission's reactor testing station near Arco. About \$2,500,000 will be spent on the site and the reactor will be the first attempt to demonstrate the theory of breeding nuclear fuel. The reactor is designed to produce more fissionable material than it consumes. Other reactors planned for the Idaho site are a materials testing reactor and the prototype for a ship propulsion power plant.

CONTRACT AWARD FOR AEC IDAHO OPERATION—The Morrison-Knudsen Company, Boise, Idaho, receives contract to provide concrete aggregate for construction work at the Atomic Energy Commission's nuclear reactor test station near Arco. The award was made on a bid of \$135,000 to process and stockpile 200,000 cubic yards of aggregate furnished by the AEC at no cost to the contractor, from gravel pits on the reactor site. The amount also covers furnish-

THE WEST ON ITS WAY

ing, installing and operating the aggregate processing plant. Production will start within sixty days.

MERGER ANNOUNCED—Northuna Mining Company forms to take over and operate the North Hill and Una gold mines, with a capitalization of \$25,000, near the old town of Golden. Incorporators are C. O. Sowder, E. Ben Johnson and Gordon Johnson, all of Spokane.

MONTANA

CORPORATION FORMED—The Eastern Montana Abstract & Title Company, Jordan, and the Mill Creek Mining Company, Livingston, forms and files Articles of Incorporation in the former's name, capitalizing in the amount of \$25,000, with 1000 shares of common stock without nominal or par value.

SAWMILL OPERATIONS RESUMED—Loggers return to work and sawmills resume operations following a shutdown caused by freezing of equipment in the woods in January. All operations are now on a five-day week basis.

DIRECTORY OF MONTANA MINING PROPERTIES DUE—The 1950 edition of Directory of Montana Mining Property is due off the press in March and copies will be sold at \$1 a copy. Requests for same may be sent to Dr. Francis A. Thomson, president of the Montana School of Mines.

URANIUM BOOKLET AVAILABLE—A pocket-sized manual entitled "Prospecting for Uranium" is available and may be obtained at a cost of 30 cents by writing to the Department of Commerce district office at Butte. Subjects covered range from tests for uranium, to laws and regulations and where to look for the ore-bearing minerals.

LUMBER, CONTRACTING FIRM CHANGES—Riordan-Anderson Lumber Co., Shelby, and O'Neil, Riordan & Anderson, general contractors, are both now without John Riordan as a partner. He sold his interest in the former firm to the O'Neil Bros., Havre, and P. B. Anderson, of Shelby. His interest in the contracting firm was sold to the remaining two partners. Both transactions effective Feb. 1.

HAVRE GAS MAY GO UP 15¢ per thousand cubic feet, if the increase projected goes through. Montana Gas Corp. presently charges 32¢.

NEVADA

NEW NEVADA PLANTS—Three firms are scheduled to locate soon at the state-owned Basic Magnesium plant near Henderson. They are: Combined Metals Reduction Co., Pioche, who will buy one unit of the BMI plant and a 50-acre tract. They will install an electrolytic plant for refining of ores mined in eastern Nevada; Harvey Machine Co., Torrance, Calif., plans for a 200-acre tract on which they anticipate a \$5,000,000 twin-aluminum plant. They will produce aluminum products; and National Lead Co., who will buy two units of the BMI plant and another 50-acre tract, where they will produce titanium. Power for these activities will come from Hoover and Davis dams.

LAS VEGAS SMELTER—San Miguel Mine Milling and Smelting Co. plan to start mining and smelting operations this spring in Las Vegas area. Open pit mica mining will take place in the mountain district west of Las Vegas, and mine and mill will employ about 100 persons under full production.

GAS COMPANY SOLD—Winnemucca Gas Company is sold to Woodrow and Roy Eriksen of Idaho by Mr. and Mrs. George Hale, operators for the past four years. Unionville, Imlay, Mill City, Golconda, Midas, Paradise, McDermitt, Denio, Orovala, along with Fields and Andrews, Oregon, are included in territory covered by the company.

NEW MEXICO

NEW GRAIN ELEVATOR is being built at Clovis. This \$300,000 elevator, built by Farmers Cooperative, will hold about 1,000,000 bushels. Completion is expected in time for this year's harvest.

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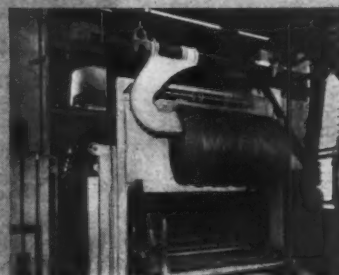
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LOS ANGELES 14

THE WEST ON ITS WAY

\$6,000,000 OIL DEAL—El Paso Natural Gas Co. purchases the Barker Creek dome gas holdings of the Delhi Oil Corp. in Colorado and New Mexico for \$6,000,000, it is reported.

THE MIGHTY ATOM caused an economic bonanza near Albuquerque last year, when basic construction alone accounted for more than \$22,000,000 spent at Sandia.

OREGON

TWO NEW LUMBER PLANTS will be built in the Medford area. One, a \$400,000 installation, will be put up by Ross Lumber Co.; the other, a \$500,000 plant, will be erected by White City Lumber Co. They will both be in the same area, on the old Camp White property, and other firms are expected to follow suit. These two plants will give employment to about 300 persons.

WEYERHAEUSER EXPANDS the production capacity of their Springfield, Oregon, sawmill by 30% to 40%. Cost will run between \$1,000,000 and \$1,500,000.

LUMBER FIRM SOLD—McKenna Lumber Co., including the sawmill at Bay City, is sold to Coos Head Timber Co. Plans call for reactivation of the McKenna mill as soon as some repairs and alterations are finished. The mill has been inactive since last May.

CONTAINER CORP. OF AMERICA TO BUILD a large plant in Portland. No site has been selected at this writing, but the new plant will contain about 100,000 square feet and employ about 100 persons. Corrugated shipping containers and folding cartons will be produced. Machinery for the folding carton operation will be moved from the Columbia Paper Box Co. plant purchased last year.

\$1,000,000 GRAIN ELEVATOR will be built in Portland by Great Western Malting Co. of Vancouver, Washington. This structure will be of reinforced concrete, 60 feet wide, 600 to 700 feet long, and 225 feet high.

UTAH

PIPELINE CONTRACTS—Salt Lake Pipe Line Co., a division of Standard Oil Co. of California, awards two contracts for the construction of an oil products pipeline 240 miles long, an extension of the Salt Lake-Boise line from Boise to Pasco, Washington. Cost of the entire line and facilities from Salt Lake to Pasco will be about \$12,500,000. Three companies are involved in the first contract, covering construction from Boise to Baker, Ore. They are: Morrison-Knudsen, Inc., Macco Corp., and Bechtel Corp. For the portion from Baker to Pasco, the contract was awarded to Pacific Pipeline & Engineers, Ltd. Construction will start as soon as weather permits.

AEC ANNOUNCES COURSES—Atomic Energy Commission announces it will sponsor courses in which doctors will be taught how to treat persons who suffer atomic injuries in any future war. One-week courses will be given to selected physicians. In turn, they will pass on the knowledge to doctors, dentists and nurses in their home areas. First of the courses will be held in March at Chicago, followed by courses at other universities. In the spring, courses will be offered at the atomic energy project, University of California at Los Angeles and the University of Utah School of Medicine.

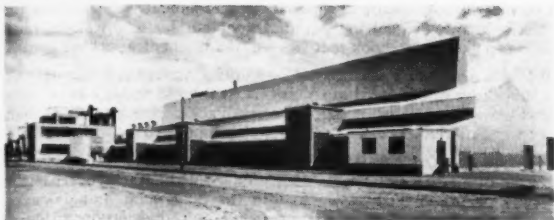
\$150,000 CONSTRUCTION IN AMERICAN FORK—Utah Power & Light Company announces construction of \$150,000 concrete building in American Fork, to serve electrical needs in rapidly growing Utah County. New building will contain 10,000 square feet of basement and ground floor space. It will also house facilities for construction and maintenance crews and a drafting department.

CANADA DRY BOTTLING CO. SOLD—Fred Tedesco and Milton L. Rawson announce purchase of Canada Dry Bottling Co. of Utah for approximately \$100,000. Expansion of operational facilities at the Salt Lake plant are under consideration.

SILICA MINING PLANS JELL—Western Glass Corporation announces undertaking of development of silica deposits in the Parowan area. The new company which was incorporated for \$1,000,000 is headed by E. Meeks and William Carlyle Dalton. Mining plans have been outlined and a glass processing plant is also being studied. Silica deposits in Parowan canyon along with feldspar and lime, will be source of raw material for the industry.

THE WEST ON ITS WAY

WASHINGTON



The Carborundum Company has started production of "carborundum" silicon carbide in this new plant, shown above, constructed at a cost of over \$2,000,000 in Vancouver, Washington. It is located on a 99 acre site adjacent to the Port of Vancouver Terminal, Number Two. These buildings and facilities were built and designed with a view to possible expansion in the future. This is the first of the plants which the Carborundum Company hopes to build in Vancouver to meet the abrasive and refractory demands of growing industrial plants in the West.

ELECTROCHEMICAL PLANT EXPANDS—Hooker Electrochemical Co. plans an expansion program that will double the plant's present capacity. Work is expected to be completed in October of this year, at a cost believed to be in excess of \$1,000,000. Plans include removal of two circuits of Type E electrolytic cells and their replacement by newest Type S-3 cells which have far greater capacity for producing caustic soda and chlorine. Much new equipment will be installed.

OLYMPIA PLYWOOD PLANT—Hardel Plywood Co. starts operation of a plywood plant in Olympia, employing about 75 persons. This plant is designed to turn out about 12,000,000 square feet of $\frac{3}{8}$ " plywood annually.



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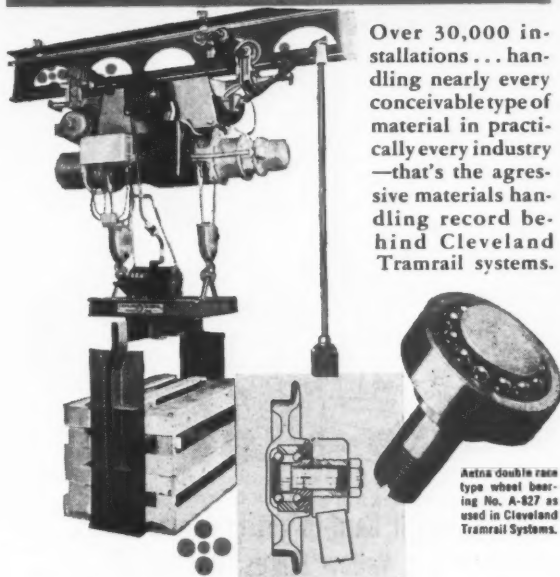
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THE WEST ON ITS WAY

LUMBER-MINING DEAL—Spokane Slocan Co. is setting up a new firm, Spokane Slocan Metal Mines, Inc., to handle the mining ventures of the former company.

SPOKANE MATCH BLOCK PLANT CLOSES—Universal Match Co. match-block plant at Spokane is permanently closed and for sale, a victim of growing popularity of rural electrification, pilot lights on gas stoves, book matches and the mechanical pocket lighter.

WELLS ASPHALT REFINERY—Stancal Asphalt & Bitumuls Co., a subsidiary of Standard of California, will build an asphalt refinery at Point Wells, Washington, to serve Pacific Northwest's asphalt products market. Project to be completed in 1950.

BLAST DAMAGES WEYERHAEUSER PLANT—A dynamite charge of 80 kegs, set off at Mt. Coffin, south of the Weyerhaeuser Longview property, blew rocks into the pulp plant and damaged the power plant and some sections of the pulp division operation.

FULLER PAINT SPREADS IN SEATTLE—Sound Paint Manufacturing Co., 1437 Leary Way, Seattle, has been sold to W. P. Fuller & Co., 301 Mission St., San Francisco. This new plant will be operated as the Sound Paint Manufacturing Co. Industrial Division of W. P. Fuller & Co. Wm. F. Grubb, founder and owner of the company, until its sale to Fuller, will remain as manager of the new division.

WYOMING

PIPELINE COMPLETED—A new 14-mile crude oil pipeline from the Gooseberry Field, Park County, has been completed by General Petroleum Corp. A pumping station and three tanks of 3,000 barrels capacity each were also constructed.

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WESTERNERS AT WORK

California

HUGH MIDDLETON, Pacific Coast manager of De La Rama Steamship Co. at San Francisco, appointed assistant to HARRY S. SCOTT, president of General Steamship. R. V. WINQUIST, vice-president, traffic, elected executive vice-president and member of board, succeeding the late DREW CHIDESTER.

SHERWOOD A. NICHOLS elected executive vice-president of Aircraft Engineering & Maintenance Co., Oakland, California.

GEORGE S. COLEY named manager of S & W Fine Foods plant in Redwood City, succeeding the late THOM RHORABAUGH.

HARRY A. MITCHELL elected chairman of the Western Transportation Conference, San Francisco, succeeding M. B. SILBERBERG of Los Angeles.

J. PHILIP MURPHY elected president of Judson Pacific-Murphy Corp. at Emeryville, succeeding PAUL F. GILLESPIE, retiring after 30 years' service. CARLOS J. MAAS elected to newly created position of chairman. DOUGLAS A. BAILEY elected vice-president.

G. A. FILICE elected president of California Processors & Growers, Inc., Oakland; R. G. LUCKS named vice-president and JOHN W. BRISTOW returned to office of manager.

WILLIAM E. WASTE elected chairman of the San Francisco Bay Area Council, Inc., for 1950.

FRANK D. LORTSCHER named manager of the newly-created purchases and stores department of Signal Oil and Gas Company, Los Angeles.

RALPH W. SHAFOR, manager of International Minerals and Chemical Corporation, elected president of the San Jose Chamber of Commerce, succeeding GENE SMITH.

LAURENCE ANDREW appointed manager of the Pipe Line Department of General Petroleum Corporation; V. C. LARSEN appointed general superintendent and H. T. WILLIAMS Northern Division superintendent at Taft. C. W. HOUSE becomes Southern Division superintendent at Vernon, California.

WILLIAM E. QUAY named manager of plywood division of M. & M. Wood Working Co. at Eureka, succeeding ELMER HALL, retired.



W. W. MEIN, JR.

American Institute of Mining and Metallurgical Engineers, and a vice-president of Bishop Oil Company, San Francisco.

WILLIAM WALLACE MEIN, JR., vice-president of Calaveras Cement Company, San Francisco, appointed to membership on the National Minerals Advisory Council. Mein has been secretary of the California State Mining Board since 1944 and is Western vice-chairman of the Industrial Minerals Division of the

GIL NETTLETON appointed director of newly-created military relations department of Northrop Aircraft, Inc. JAMES M. BUGBEE named his assistant. Both also act as production test pilots.



DR. L. KOENIG

FRED W. NEALE, chief cost accountant of Boeing Airplane Co., named chief industrial engineer; JAMES BARTON, senior cost analyst, named chief cost accountant; PAUL FORD named senior cost analyst.

JAMES BARDSLEY appointed general manager of Pacific Coast Division of Trailmobile Co., Cincinnati, Ohio.

DR. ROBERT JONES, founder and head of Church Grape Juice Co., Kennewick, Washington, resigns. EVERETT ELERATH of San Francisco succeeds him.



C. G. BARNARD

WM. H. HOLE of Calpak, San Francisco, named assistant superintendent of plants for Hawaiian Division succeeding ROBERT F. ENGMAN, retired.

JOSEPH R. HARMON appointed secretary of Hunt, Foods, Inc. Board increased from seven to nine members with EDWARD MITTELMAN, treasurer and IRVING GOLDFEDER, vice-president, elected directors.

L. R. GUSTIN appointed assistant superintendent of the Los Angeles Bolt and Nut Plant of Bethlehem Pacific Coast Steel Corporation.

JEAN E. JOUYON-ROCHE, Sr., appointed supervisor of training and safety of Shell Oil Company in Los Angeles area.

J. W. HINCHCLIFFE appointed director of material of Northrop Aircraft, Inc., succeeding CONRAD KUNZE, resigned.

B. C. McNEILL appointed assistant to the president of Rhodes Lewis Company, Culver City.

EDWIN L. SMITH and FRANK ITTNER named vice-presidents of Superior Oil Company.

DR. LOUIS KOENIG, formerly of Chicago, Ill., named to the newly-created post of assistant director of research at Stanford Research Institute. Dr. Koenig was chairman of chemistry and chemical engineering at Armour Research Foundation in Chicago before accepting new post.

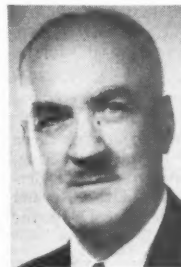
GEORGE J. BARRY appointed wire rope sales engineer for California Wire Cloth Corporation, a CF&I West-coast subsidiary, at Oakland.

R. C. STONER, vice-president and director of Standard Oil Company of California, retires after more than 36 years of service.

PAUL C. WILMORE appointed manager of Region I of Reynolds Metals Co. for the building products division, which covers the 11 Western states.

K. F. LEAMAN appointed assistant division manager of Consolidated Vultee Aircraft Corporation at San Diego.

L. C. MONROE appointed manager of distribution and traffic of Union Oil Co. of California, succeeding J. D. REARDON, retired.



H. CROMWELL

ALEXANDER CROMWELL appointed vice-president of Soule Steel Company, San Francisco. Cromwell, who has been vice-president of Johns-Manville Corporation since 1937, and in charge of all Johns-Manville factories since 1945, also becomes a member of the Soule board of directors.

The McCarty Company, 1206 Maple Avenue, Los Angeles 15, names CLARENCE G. DAVENPORT and WILLARD H. WILDE vice-presidents, respectively. Davenport, associated with the company in Los Angeles since 1930, has been identified with all phases of the Agency's operation. His new executive function will place him in charge of research and development of client plans and campaigns. He is presently a vice-president of the National Industrial Advertising Association, Southern California Chapter. Wilde has been manager of the San Francisco office since 1939.

Colorado

R. W. BROWN appointed Eastern division advertising manager of Colorado Fuel and Iron Corporation with headquarters in Denver, Colorado.

GENE NICOLAI named head of public relations for the Bureau of Mines at Denver, Colorado. Nicolai was formerly assistant district information officer of the Columbia Basin reclamation project.

H. W. HODGES appointed superintendent of CF&I wire works succeeding WILLIAM MEREDITH, retired. HAROLD DEGITZ named assistant superintendent of the mill.

WALKER R. YOUNG, former chief engineer of the U. S. Bureau of Reclamation, elected president and treasurer of Thompson Pipe & Steel Co., Denver, succeeding the late J. LESLIE BROWN; GERALD H. GARRETT named vice-president, and JOSEPH L. BROWN, secretary.

L. V. PATTON named new district field manager in Denver, Colorado, by B. F. Goodrich Co.

Continued on next page

WESTERNERS AT WORK

Continued on page 83

WILLIAM BRILL appointed chief engineer of the Colorado Fuel & Iron steelworks in Pueblo, succeeding W. H. BAILEY. Bailey will continue his CF&I service at Pueblo in the capacity of consulting engineer.

DONALD F. McMAHON of Denver, appointed executive secretary of the Rocky Mountain Oil & Gas Association.

Montana

MELVIN KYLE, a member of the staff at the Hamilton yard for the past 13 years, named manager of the Interstate Lumber Company, succeeding McHENRY GRAFTON, retired.

W. P. SNEDDON transferred from the Anaconda plant to offices of Anaconda Copper Mining Co. at Great Falls as chief clerk in charge of accounting, succeeding E. V. LARSEN, presently incapacitated because of ill health.

ROLLIN J. KENNARD appointed mechanical superintendent of the Great Falls reduction works of the Anaconda Copper Mining Co. in Montana and Idaho. JAMES W. PORTER succeeds Kennard at Butte. CARL J. LUNDBORG named assistant mechanical superintendent.

Nevada

S. R. DuBRIVAC succeeds JOHN MUELLER as permanent manager of the Basic Magnesium Project plant properties at Henderson. Mueller is a member of the Nevada Colorado River Commission and DuBrivac has been his assistant.

Oregon



H. I. CONNER

WILSON S. HENSON resigns as superintendent of the Umpqua Plywood Corporation, Roseburg, Oregon, and accepts similar position at the Coast Plywood Manufacturing Co. plant at Calpella, California.

C. V. GRIFFITH elected treasurer and assistant secretary of Portland Gas & Coke Co.; H. N. BURNSIDE named secretary and assistant treasurer. They succeed C. W. PLATT, retired, who will continue as a director.

LANSWING W. ALTHOF promoted to newly-created position of district engineer, Northwestern district of Union Pacific, with headquarters in Portland.

HOLLIS I. CONNER appointed assistant manager of the export division of the Hyster Company of Portland. Conner will serve as Head of Hyster's Peoria, Illinois export department and as contact man between export headquarters in Portland and Hyster's two eastern plants.

Utah

O. A. WIESELEY named commission chairman of Gov. J. BRACKEN LEE's statewide committee on industrial and employment planning being presently sponsored by the Utah industrial commission. Wieseley will serve as head of the executive committee.

Gov. Lee is honorary chairman of the group. Others named to the executive committee are: FULLMER H. LATTER, CURTIS P. HARDING, GUS P. BACKMAN, H. C. SHOEMAKER, HARVEY KING, JOHN M. WALLACE, L. C. ROMNEY, and ALONZO F. HOPKIN.

W. S. WAGSTAFF re-elected president of Western States Refining Company at Salt Lake City. Also re-elected were J. HOWARD VALENTINE, executive president and sales manager; E. C. JENNINGS, secretary-treasurer; and V. C. LANGFORD, Bountiful, plant manager.

V. S. BARLOW named assistant mine superintendent of Kennecott's Utah copper division; ERNEST C. SIMKINS named general mine foreman; RICHARD H. WILLEY advanced to general mill foreman, and M. A. MOFFAT becomes employment director at the mills department. JOHN EDWARD CAVANEE and WILLIAM J. HICKS are retiring.

L. F. DOBYNS, Provo, named new contact representative in metallurgical, chemical and inspection departments of Geneva Steel Co. R. J. PROUT succeeds Dobyns as superintendent of specifications.

F. M. BARTON named assistant superintendent of the Magna plant, Kennecott Copper Corporation, succeeding C. B. ASHBY, retired after 44 years of service.

Washington

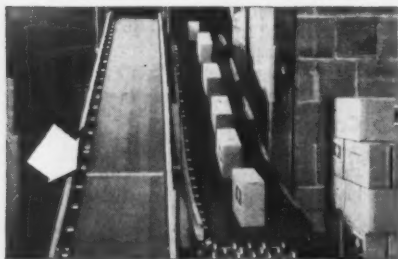
WALTER A. TOLY elected president of the Columbia Electric and Manufacturing Company at Spokane, succeeding ERIC A. JOHNSON. Johnson, retiring president, named chairman of the board of directors.

ROBERT A. McCANN of Spokane appointed managing secretary of the Missoula Cham-

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PACIFIC COAST GAS ASSOCIATION

ber of Commerce. McCann has been industrial manager of the Spokane Chamber of Commerce for the past three years.

GEORGE A. WHITELY named manager of the Washington Water Power Company's Big Bend division, succeeding the late T. E. HOLSEY.

J. CLEARY POTTS appointed consulting engineer for the Washington Brick & Lime Co. at Spokane.

FERDINAND SCHMITZ resigns as vice-president of Pacific Car & Foundry Co. and accepts vice-presidency of Seattle Steel Co. and Inland Empire Steel Co., a subsidiary, at Spokane.

C. I. JAMIESON, comptroller of Pictsweet Foods Inc., Mt. Vernon, Washington, named treasurer succeeding H. O. MALSBURY, retiring after 25 years with the company and predecessor firms.

Associations Elect

Pacific Northwest Personnel Management Association, Spokane Chapter: President, Reuben H. Kissler, Safeway Stores, Inc.; vice-president, Walter P. Scott, Bunker Hill & Sullivan Mining Company; treasurer, Paul Ewing, Washington Water Power Company; secretary, Mrs. Tessie Baird, Kelsey Baird.

Northwest Mining Association: Dr. Vernon E. Scheid, chairman of the department of geology-geography at the University of Idaho, appointed committee chairman.

Montana Coal Operators Association: S. H. Clark, Roundup, president; W. A. Romek, Red Lodge, vice-president; D. F. Buckingham, Billings, secretary-treasurer; and Mrs. Kay Penman, Billings, assistant-secretary.

Utah Manufacturers Association: Albert E. Becker, Ogden, president; Kingsley E. Clawson, American Asphalt Roof Corp., first vice-president; Donald H. Fisher, Fisher Baking Co., second vice-president; Charles T. S. Parsons, Kennecott Copper Corp., Utah Copper division, treasurer; and William Birrell, Birrell Bottling Co., secretary.

Western Chemical Market Research Group: George Stern, Heyden Chemical Co., chairman; E. W. Eipper, Oronite Chemical Co., vice-chairman; and F. G. Sawyer, American Chemical Society, secretary-treasurer.

Central California Dry Kiln Club: James Orand, Setzer Forest Products Inc., president; W. A. Kinney, Western Dry Kiln Co., Oakland, vice-president; and Harvey Smith, California Forest & Range Experiment Station, secretary-treasurer.

New Mexico Miners and Prospectors Association: William H. Goodrich, Kennecott Copper Mines, Chino division, president; T. M. Cramer, U. S. Potash Co., Carlsbad, vice-president; J. B. Carman, Molybdenum Corp. of America, Questa, second vice-president; and Jack Pierce, Albuquerque, secretary-treasurer.

American Statistical Association, San Francisco Chapter: B. E. Etcheverry, Kaiser Steel Corporation, Oakland, elected president.

West Coast Lumbermen's Association: D. W. Gossard, Enumclaw, president; Judd Greenman, Vernonia, Ore., and G. E. Karlen, Tacoma, vice-presidents; Frank A. Graham, Jasper, Ore., treasurer; W. B. Greenley, Seattle, vice-president; H. V. Simpson, Portland, executive vice-president; and Harris E. Smith, Portland, secretary.

Coal Producers Association of Washington: R. W. Clark, Seattle, named executive-secretary, succeeding the late James E. Ash.

Columbia Empire Industries Inc.: M. J. Frey, The Oregonian Publishing Company, Portland, president; Vern J. Johnson, Evans Products Company, Coos Bay, first vice-president; Alex Hay, The Long Bell Lumber Company, Longview, Washington, second vice-president; and George T. Bragg, Pacific Power & Light Company, Portland, secretary-treasurer.

Milk Products Manufacturers Association: A. W. Reid, Golden State Company, San Francisco, president; E. L. Wetmore, Milk Producers Association, San Francisco, vice-president; Mark Walters, Dairymaid Creameries, treasurer; and J. Paul St. Sure, attorney, Oakland, secretary.

Merchants and Manufacturers Association: H. C. McClellan, Old Colony Paint & Chemical Co., president; Dave F. Smith, chairman, executive committee; Bryant Essick, Essick Manufacturing Co., E. H. McGinnis, Union Hardware & Metal Co., and C. W. Timmons, Superior Tank & Construction Co., vice-presidents; M. A. Koffman, Southwestern Portland Cement Co., secretary; and J. B. Van Nuys, I. N. Van Nuys Building Co., treasurer.

Pacific American Steamship Association: Albert W. Gatov, president; E. D. Flaherty and R. S. Kimbark, vice-presidents; Henrietta T. Smith, secretary-treasurer. A. R. Lintner re-elected PASSA vice-president for the Seattle-Puget Sound Area; Hillman Lueddemann, re-elected vice-president for the Columbia River Area; and Ralph J. Chandler re-elected vice-president in the Los Angeles-Long Beach Area.



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Pacific Coast Sales: The California Wire Cloth Corporation, Oakland, Calif.



FHA TERMS AVAILABLE

Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

Oregon Handling Equipment Company, Portland, recently took on as stocking distributors the "Steel-Weld" line of industrial casters manufactured by the **Fairbanks Company** of Rome, Georgia.

Food Industries Equipment Company, Portland and Seattle, appointed sales representatives for **Sellers Hi-Pressure Jet Cleaner** manufactured by **Sellers Injector Corporation**, Philadelphia, Pa. Territory served is Oregon, Washington, British Columbia and Alaska.

Power Transmission Products Division, **Portland Iron Works**, appointed exclusive sales representatives in Oregon, Idaho and Utah for **Webster Manufacturing, Inc.**, manufacturers of all types of equipment for the mechanical handling of materials.



J. J. KRAL
Cleveland and plant manager at Chicago before becoming Western division manager in 1943.

Cal-State Products, Inc., Los Angeles, opens new sales office and warehouse at 512 First Ave., S., Seattle, Washington, and names **C. R. MILLER** as general sales manager. Manufacturing and distribution of products for deep and shallow well domestic systems, irrigation and industrial centrifugal pumps, deep and shallow well turbine pumps and other supplies, will be made by the firm.

R. H. Brown Company, Seattle, appointed stocking jobbers on the **Standard Conveyor Company** line of portable gravity and booster conveyors.

ANTON (TONY) M. MITROVICH appointed resident sales representative in Portland for the **Rome Cable Corp.** An office has been established at 1020 S.W. Taylor Street and from here Mitrovich will cover the territory of Oregon and the southern counties of Washington. Prior to this appointment, he was formerly with the **General Electric Supply Corporation** in Portland.

Modglin Company, Inc., 3235 San Fernando Road, Los Angeles 65, establish an industrial products division headed by **GLEN M. ALFORD** as sales manager.

CHARLES F. COOPER named assistant sales manager of **Kaiser Steel Corporation**, central district, covering northern California, southern Oregon, Idaho, Utah, Montana and Nevada territory. **L. G. JOHNSON** named head of newly-opened sales office at Houston, Texas.

Norwes Company, Seattle manufacturers' representatives, recently added the following lines: **Stow Manufacturing Company's** line of flexible shafting and concrete vibrators; **Louisville Electric Manufacturing Company**, manufacturers of the "Pioneer" two-speed all-purpose drill. Territory served will be Washington, Montana and northern Idaho.

Murry Jacobs Company, Seattle distributor of materials handling equipment, appointed exclusive distributors in the State of Washington by **E. W. Buschman Company**, manufacturers of portable gravity roller and skatewheel conveyor, overhead conveyors and hand trucks.

E. C. Griffin Company, Seattle manufacturer's representatives, recently added the line of drop, flat-die, and upset forgings manufactured by **Kropp Forge Company**, Chicago, Illinois.

Skillsaw, Inc., Seattle, announce the appointment of **BYRON HOFFMAN** as resident sales representative in Spokane. He will be located at East 717 40th Street and will cover eastern Washington, Montana and the Idaho panhandle under the supervision of the Seattle factory branch.

Bearing Sales & Service, Inc., Seattle and Portland, open new branch in Eugene, Oregon, at 1450 W. 7th Street. **PAUL MARSH** becomes branch manager. Lines carried will be SKF, Timken, New Departure, and Hyatt bearings among others.

Bearings & Transmission Products is the name of the new bearing distributing company recently established in Eureka, California, by **HENRY JACOBS**, formerly with **Portland Iron Works**. Lines carried, among others, will be SKF and Timken bearings.

Modernair Corporation, 4222 Hollis St., Oakland 8, California, announce opening of a Los Angeles Factory Branch with **LOYD COWDEN** as manager. **The Rucker Company** continues to represent Modernair Corporation in the Los Angeles area and through branch offices in San Francisco, Oakland, Portland and Seattle.

Ajax Electric Company, Inc., of Philadelphia appoint **FRED W. SCHLAPP** sales engineer, with offices at 204 Davis Street, San Francisco 11. Schlapp will cover territory in northern California and Nevada.



T. W. MARX
Builders Supply, Springfield, Oregon.

Republic Rubber Division, **Lee Rubber and Tire Corporation**, Youngstown 1, Ohio, name **T. W. MARX** as sales representative in the Pacific northwest, with headquarters in Portland. Marx will cover Oregon, Washington, northern Idaho and a portion of Montana. He was formerly associated with the **Aluminum**

The Whiton Machine Company, New London, Connecticut, manufacturers of **Whiton Steam Turbines**, appoint **W. E. Pearson Company**, 306 Smith Tower, Seattle, Washington, as their representative in the State of Washington.

C. A. LEIGHTON elected president of **Western Fiberglass Supply Co.** succeeding **J. O. MARTIN**. Leighton continues to serve as treasurer and Martin becomes chairman of the board. **G. B. BLACKWOOD**, southern division manager, elected vice-president succeeding **GAYLE R. DUTTON**, resigned.



W. O. MERRITT

CORWIN N. GURNEY named vice-president in charge of sales of **Canning Machinery Co.**, Portland, with headquarters in San Francisco.

HENRIK GREGER named Diesel engine representative for **Lima-Hamilton Corporation** in California, with his headquarters at 315 25th Avenue, San Mateo. Telephone Fireside 5-0781.

Chain Belt Company of Milwaukee appoint **Pacific Hardware and Steel Company, Inc.**, 1344 The Alameda, San Jose, California, as distributor for their products of the Chain and Transmission and Baldwin-Duckworth divisions of the company.



C. W. HANCOCK

Cement Products and allied Building Materials in the Western states.

Pacific Tank & Industrial Coating Company appoint **W. S. Shamban & Co.**, 2363 E. 38th Street, Los Angeles 58, California, engineering and sales representative in that territory.

P. H. McMANUS appointed general sales manager of **Templeton, Kenly and Company**, Chicago, Illinois, manufacturers of **Simplex Jacks**. In his former capacity of assistant general sales manager, he devoted a major part of his time to field sales work with the many industrial distributors of **Simplex Jacks** from coast to coast.

Kaiser Aluminum & Chemical Sales, Inc., is now acting as national sales agent for **Benson aluminum drums** for the chemical industry under an agreement with the **Benson Manufacturing Company** of Kansas City. Sales of the drums are being handled through all the 23 sales offices of the **Kaiser Aluminum** organization.

Preston Faller (industrial supplies), 1921 Minor Avenue, Seattle 1, Washington, announce changes in personnel: **ALLAN WHITE** of Eugene, Oregon, transferred to East 41 Gray Avenue, Spokane, Washington territory; **MARK HAYFIELD**, formerly of Spokane, now located at 1931 Minor Avenue, Seattle, Washington, with jurisdiction over the southwestern portion of Washington; **WILLIAM W. DAVIDSON** of the Seattle office named in charge of territory of the northwestern portion of Washington; **LEONARD BARTON** transferred to 210 Ransome Building, 115 East 11th Avenue, Eugene, Oregon office covering southern portion of Oregon. Portland office, with consolidation of sales, parts and service, moves into new building at 1600 N.W. Northrup.



R. H. COMPTON

Fruehauf Trailer Company, 5137 So. Boyle Avenue, Los Angeles 11, appoint **ROY H. COMPTON** advertising and sales promotion manager for their Western division which covers the eleven Western states. Previously, Compton was connected with Kudner Agency, Inc., and Zimmer-Keller, Inc., national advertising agencies, as their West coast representative assigned to the Fruehauf account.

The Republic Supply Co. of California announce a new organization of the company's sales and service department to meet the rapidly changing supply and service requirements of the industrial, petroleum, marine, chemical processes, and other Western industries served by Republic. **ROY JOHNSON** appointed vice-president in charge of sales. **M. D. JAYRE** named manager of Republic's Northern Region and will have charge of Republic's branch stores in Oakland, Fresno, San Jose and Stockton. **G. E. PITTS** named manager of Republic's newly-created Central Region and **R. L. TEMPLE** appointed manager of Southern Region.



J. S. THOMPSON

R. H. MADDEN

JOHN S. THOMPSON and **ROBERT H. MADDEN, JR.**, named assistant managers of sales for the Central Sales Division of **Columbia Steel Company**, a United States Steel Corporation subsidiary, with headquarters located at 1341 Russ Building, San Francisco. Thompson joined the Central Sales staff of Columbia Steel in 1932, and prior to that was sales promotion manager for B. F. Schlesinger and Sons, and manager of a Sears-Roebuck store in Oakland. Madden joined Columbia Steel in 1933 as a sales trainee and spent a year in various departments of the Pittsburg works of the company. After working in the Wire Rope Mill and warehouse, both then located in San Francisco, Madden became attached to the Central Sales Division.

A Western Regional sales meeting was held last month in San Francisco by the **Rapids-Standard Company, Inc. of California**. **J. R. SEBASTIAN**, president, **G. R. BROCKWAY**, vice-president and sales manager, and **C. PLIN MEARS**, Western Regional manager, led the meeting. Men who attended were: **ART and MILT CANFIELD** of the **M. E. Canfield Company**, Los Angeles; **LYLE H. VANDERCOOK** and **JACK DAVID** of **Oregon Handling Equipment Company**, Portland Oregon; **LLOYD G. BACKART** of **Rapids-Standard Company, Inc.**, Seattle, Washington, and the entire staff of the **Rapids-Standard Company, Inc. of California**, San Francisco. Discussions included sales plans for 1950, growth of the individual agencies and the film presentations of many new material handling devices recently developed for bag handling, wholesale grocery operations, super market operations and general application in Western industries.

Edward D. Maltby Co. of Los Angeles, San Diego, Phoenix and Honolulu named master industrial distributor of **Durkee-Atwood** general duty (F.H.P.) V-Belts and Industrial (Multiple) V-Belts for Southern California, Arizona, New Mexico and the territory of Hawaii. This firm also appointed distributor in Southern California and Arizona for the standard products of **Jeffry Manufacturing Company** of Columbus, Ohio. Products to be distributed include all types of malleable and steel chains, and the necessary sprockets for them, oil well chains, spiral conveyors and accessories, solid and split babbitted pillow stocks, standard elevators and belt conveyors and other standard elevating and conveying parts.

CHARLES MERIAM, **G. M. COOKE**, **EVERETT M. CLORAN**, Western representatives for **The Meriam Instrument Company**, 10920 Madison Avenue, Cleveland 2, Ohio; **Schutte & Koerting Company** of Philadelphia, Pennsylvania; and the **Ruggles-Klingemann Company** of Salem, Massachusetts and others, move to their new sales offices at 4760 East Olympic Boulevard, Los Angeles 22, California. The building has sales offices in the front and stocking and shipping facilities at the rear. As manufacturers' representatives in the industrial field, the group have offices also in San Francisco.

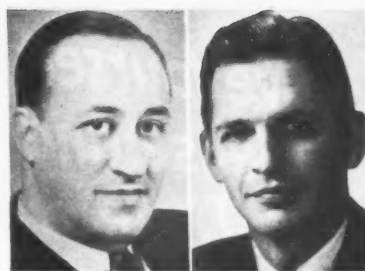
RAY A. WOLLEN named distributor by **General Petroleum Corporation**, for their Mobil products in The Dalles, Oregon.

JOHN J. BOGNER, formerly Pacific Northwest manager for **Interlake Chemical Co.**, becomes California manager of the chemical division of **The Borden Company**, handling technical service and sales to the plastics, plywood, furniture and mineral wool industries under the direction of **H. H. CLARKE** of Seattle, who heads up the chemical division for the Coast. For the present, Bogner will operate from his home in San Mateo.

THOMAS F. TOLBY appointed district sales engineer for **Signode Steel Strapping Company** with headquarters in Portland, Oregon. Tolby succeeds **J. R. WILLIAMS** who transferred to the home office in Chicago as advertising and sales promotion manager.

Spencer Machinery Company, Portland, become sales representatives in Oregon and southwest Washington for the **Wilkinson** line of automatic moisture removing valves for air lines, air tanks and air brakes.

Fairbanks, Morse & Co., 600 South Michigan Avenue, Chicago 5, Illinois, appoint **J. C. ELMBURG** as branch manager at Portland, Oregon, succeeding **HOWARD OXSEN**. Oxsen returned to San Francisco as manager of Diesel engine sales in that area.



C. I. BRADY

R. C. HARPER

Sylvania Electric Products, Inc. have reorganized the California Sales Division into two separate divisions in order to coordinate sales and warehouse activities in each area. **ROBERT C. HARPER**, formerly a member of the Los Angeles Sales Office, appointed Division Sales Manager of Lighting Products for the Central Pacific Division with headquarters in San Francisco. **CHARLES I. BRADY**, formerly Supervisor of Commercial Engineering for Lamps, named to same position in the South Pacific Division with headquarters in Los Angeles.

Sylvania Electric Products Inc., Seattle, announce personnel changes in the northwestern division: **W. C. CHILDS**, sales representative, transferred from the Philadelphia office to Seattle; **GORDON A. JOHNSON** added to the staff for the northwestern division to represent Sylvania on their retail merchandising program; **R. P. GUION**, formerly sales representative in the Oregon territory, appointed Radio Tube division manager and transferred to the Seattle office.

California Cold Rolled Steel Corporation, 7140 Telegraph Road, Los Angeles 22, appointed distributor by **Thomas Steel Company** for their Electro-galvanized strip in various thicknesses. This material can be supplied in practically any width. It is suitable for drawing, forming, stamping and painting.

BURNHAM ADAMS named sales manager of **Airesearch Manufacturing Co.** succeeding **ROY LECKEY** who becomes Washington representative for the company. Prior to this appointment, Adams served as vice-president of Lear, Inc. for the past three and one-half years.

Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California, announce establishment of an integrated building products department headed by **CHARLES B. BROWN** as Building Products Manager. Under Brown, product managers will be individually responsible for handling sales of Kaiser Aluminum clapboard siding, shade screening and roofing.

United Air Lines appoint **E. L. DARE** district cargo sales representative for the San Francisco area, with headquarters at 400 Post Street. Dare will work directly with Bay Area shippers to handle Northern California's expanding cargo business.

Kaiser Aluminum & Chemical Sales, Inc., is transferring several product sales offices to eastern locations. The company's aluminum sheet and building products sales offices are being established at Chicago, with offices in the Palmolive Building. Product offices have also been set up at the Newark, Ohio, plant of Kaiser Aluminum & Chemical Corporation for electrical conductor and cable; wire, rod and bar, and pig, ingot and billets. Sales headquarters of the foil division are located at the Kaiser Aluminum foil plant at Permanente, California.

Continued on next page

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TRADE WINDS

Continued from page 87

E. L. MATHY appointed sales and advertising counselor for *National Welding Equipment Co.*, 218 Fremont Street, San Francisco 5. He was formerly with Victor Equipment Company, where he developed and guided the sales promotional and advertising operations of that firm, and was first vice-president and director for over 20 years. Mathy also worked for the Air Reduction Sales Company for approximately five years, and prior to that time had his own company which developed and marketed gas welding and flame cutting apparatus. For over thirty years he served as president of the San Francisco Sales Managers' Association and as president of the Northern California Industrial Advertisers' Association. He was chairman of the American Welding Societies, San Francisco section, and has been a National Director both of that Society and of the International Acetylene Association.



J. A. SETCHELL

Allen-Bradley Company, electric control manufacturers of Milwaukee, Wisconsin, appoint JAMES A. SETCHELL San Diego representative. Setchell will operate under his own name at 301 West "G" street, San Diego 1, as a district representative in charge of all sales in an area comprising San Diego and Imperial Counties in California, and the entire state of Arizona. He operated as a representative of the Trumbull Electric Company for many years prior to starting his own operations as manufacturers' representative.

Blake, Moffitt & Towne, 599 8th Street, San Francisco 3, appoint MAURICE V. ABBOTT sales manager of its Fresno division.

Drake Steel Supply Co., Los Angeles, appoint ROBERT L. MCJIMSEY division manager of its San Joaquin Valley operations with headquarters in Fresno. WILLIAM A. OAKFORD named supervisor of its reinforcing bar fabricating department at Fresno, and T. V. MORGAN continues there as supervisor of sales.

The Colorado Fuel and Iron Corporation announce consolidation of their Advertising Offices with headquarters remaining in the Continental Oil Building, Denver 2, Colorado. The advertising department of the Wickwire Spencer Steel division formerly located at 500 Fifth Avenue, will be identified as the Eastern Division advertising department and located at the Denver address. ROBERT W. BROWN appointed Eastern Division advertising manager.

Hild Electric & Mfg. Co., 125 West Main Street, Stockton, California, and *Northwest Chain & Sprockets, Inc.*, 123 S.W. Pine St., Portland, Oregon, named Pacific Coast dealers for *Allis-Chalmers* general machinery division.

G. C. BUKOWSKY, former manager of *John A. Roebling's Sons Co.*, Portland branch, named head of the San Francisco office succeeding E. A. TRASK who assumes new duties as manager of sales of the company's Chicago corporation.

W. A. JONES named factory representative of *Irvington Machine Works* for Washington, northern Idaho and Montana, with headquarters in Seattle.

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A series of meetings will be held in San Francisco during April and May, to discuss "Cooperation in Reducing Materials Handling Costs." There will be six or seven sessions, one each week, lasting about two hours each.

Sponsors of these meetings are: School of Management, Golden Gate College; American Society of Mechanical Engineers; Task Committee on Materials Handling of the National Security Association, and various associations representing the firms that cooperate.



K. T. BARR



J. F. WRIGHT

Personnel changes at *Hyster Company* include: JOHN F. WRIGHT named district truck sales manager for northwest area; DONALD H. SHAEFFER promoted to head sales in southeastern Canada, northern Ohio, eastern Michigan and southwestern New York; and KARL T. BARR named sales manager in California, Arizona, Utah and Hawaii.



W. L. BOWRON

Willard Storage Battery Company, Cleveland, Ohio, appoint W. L. BOWRON, former sales manager in the Dallas district, as California district sales manager, replacing W. L. TYLER. Succeeding Bowron as Dallas district sales manager is N. G. WOLF, formerly manager of Willard's Dallas plant.

Kaiser Aluminum & Chemical Sales, Inc. establishes a specialized department for the sale of Kaiser Aluminum rod, bar and non-electrical wire products headed by JOHN MENZ as product manager and located at the Newark, Ohio, plant.

W. P. Wooldridge Co., 1060 Howard St., San Francisco, California named new representative by *Great Western Steel Co., Inc.* for California, Montana, Idaho, Utah, Nevada, Arizona and New Mexico territory.

AVAILABLE FOR LEASING: LONG BEACH NAVAL SHIPYARD, LONG BEACH, CALIFORNIA

Commandant, Eleventh Naval District, acting for Chief, Bureau of Yards and Docks, Department of the Navy, invites proposals for leasing of portions of Long Beach Naval Shipyard, Terminal Island, Long Beach, Calif., consisting of Government-owned land and the facilities thereon, including all machine tools, woodworking, electrical, and handling equipment, necessary and incidental to operation of facilities. Installation is readily adaptable to various industrial usages. LOCATION: Terminal Island within city limits of Long Beach, fronting on Seaside Blvd., within commuting distance of Los Angeles, Pasadena, San Pedro, and other populous areas. ACCESS: Served by the Harbor Belt Line Railroad, operating agent for Union Pacific, Southern Pacific, Santa Fe, and Pacific Electric railroads with ample spur trackage to all points within the plant. Public transportation available to site. Vehicular access provided by bridges and ferries. Adjacent water-terminal facilities in Long Beach Harbor. SHOP FACILITIES: Following facilities are complete entities and will be available for leasing as separate industrial units: (1) **Wood-working Shop—Building No. 102.** Wood frame construction on concrete foundation with main floor 133' x 547' and partial second floor. Total floor space 102,063 sq. ft., with office space, wash rooms, tool and store rooms. Equipped with six cranes of 5 and 15 ton capacities and is complete with forming and bending machinery, mill, joiner and pattern shop, serviced by gas, electricity, compressed air, water, and railroad trackage. (Available March 15, 1950.) (2) **Metal Fabrication Shop, Forge Foundry, Heat Treating, and Boiler Shop—Building 128.** Steel framed and trussed construction on concrete foundation with one floor 267' x 532', divided in three longitudinal bays. Total floor space 142,044 sq. ft., with office space, wash rooms, locker and storage rooms. Equipped with four bridge cranes 2 and 15 ton capacities and is complete with machinery and equipment for metal fabrications, forging, welding, heat treating and non-ferrous castings, serviced by gas, electricity, compressed air, water and railroad trackage. (Available—March 15, 1950.) (3) **Electric Shop—Building No. 129.** Steel reinforced concrete construction on concrete foundation with main floor 172' x 354', divided into four longitudinal bays, and 3½ upper stories 78' x 93'. Total floor space 100,391 sq. ft., with office space, wash rooms, and storage rooms. Equipped with monorail systems and electrically operated bridge cranes and is complete with machinery and equipment for the manufacture and repair of electric motors, generators, switchboards, batteries, electrical supplies, and accessories. (Available June 1, 1950.) (4) **Sheetmetal Shop—Building No. 130.** Steel framed, glass sided, monitor-type construction on heavy reinforced concrete foundation with one floor 144' x 402', divided into three longitudinal bays. Total floor space 57,888 sq. ft., with office space, wash rooms, locker, and storage rooms. Equipped with 10-ton electrically operated bridge cranes and is complete with machinery and equipment to fabricate all types of sheet metal involving shearing, blanking, coining, perforating, pressing, rolling, welding, and painting operations. (Available March 15, 1950.) (5) **Pipe and Copper Shop—Building No. 131.** Steel framed, glass and corrugated sided, monitor-type construction on heavy reinforced concrete foundation with one floor 145' x 400', divided into three longitudinal bays. Total floor space 58,000 sq. ft., with office space, wash rooms, locker, and storage rooms. Equipped with monorail systems and electrically operated bridge cranes and is complete with machinery and equipment for fabrication, bending, testing, threading, galvanizing, parkerizing, welding, insulating, etc. (Available March 15, 1950.) (6) **Machine Shop—Building No. 132.** Steel framed, glass sided construction on heavy reinforced concrete foundation with main floor 171' x 478' and second floor of like size with two intermediate floors. Total floor space 316,000 sq. ft., with office space, wash rooms, cafeteria, locker, tool, and storage rooms. Equipped with monorail systems, jib cranes, and bridge cranes to 50-ton capacity. Complete with machinery and equipment for all machine-shop operations. Serviced by elevators, gas, water, electricity, compressed air, and railroad trackage. (Available March 15, 1950.) OTHER FACILITIES: The following buildings and structures are available for leasing on March 15, 1950:

Bldg. No.	Previous Use	Size	Floor Space
51	Acetylene Generating Plant.....	32' x 43'	1,376
103	Service Building.....	62' x 109'	16,095
109	Paint Shop.....	52' x 206'	23,922
113	Cafeteria.....	68' x 98'	8,861
144	Blueprint Shop.....	36' x 38'	2,448
147	Administration.....	40' x 264'	33,265
162	Acetylene Generating Plant.....	34' x 38'	1,192

Pier No. 4 and Stub Pier

The following buildings and structures are available for leasing on June 1, 1950:

Bldg. No.	Previous Use	Size	Floor Space
100	Public Works Shop.....	50' x 281'	14,105
101	Garage.....	65' x 243'	16,894
110	Public Works Shop Office.....	30' x 65'	1,950
112	Dispensary.....	42' x 192'	17,136
140	Cafeteria.....	140' x 162'	23,991
141	Administration.....	Winged	57,840
142	Administration.....	Winged	8,225

In addition there are numerous smaller buildings, shops, and structures available on the two dales specified. SERVICES AND UTILITIES: Complete utility services available through facilities located on premises. Government will furnish water and electrical power on cost basis. Each lessee expected to arrange for other services required. GENERAL INFORMATION: Will be leased pursuant to Act of August 5, 1947 (Public Law 364, 80th Congress, First Session), and subject to restrictions Department of the Navy deems necessary to retain adequacy of plant with right of recovery in event of national emergency. Sealed proposals, in duplicate, for leasing of facilities, or portions thereof, will be received by Commandant, Eleventh Naval District, Naval Base, San Diego 30, California, until 12:00 Noon March 31, 1950. Department reserves right to reject any or all proposals. Prospective lessees may inspect facilities and obtain detailed information by application to Commandant, Eleventh Naval District, Attention District Public Works Officer, who will make necessary arrangements for inspection.

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INDEX TO ADVERTISERS IN THIS ISSUE

A		M	
Acme Steel Company.....	65	McDonald, B. F., Company.....	59
Aetna Ball and Bearing and Roller Bearing Company.....	81	Meriam Instrument Company, The.....	78
Alan Wood Steel Company.....	17	N	
Alvey-Ferguson Company, The.....	63	National Paint, Varnish and Lacquer Association, Inc....	26
Appleton Electric Company.....	19	National Screw & Mfg. Co. of Calif.....	11
B		National Supply Co., The.....	14
Bay State Abrasive Products Co.....	22	O	
Boston Woven Hose & Rubber Company.....	28	Oakite Products, Inc.....	68
Buschman, E. W. Co., The.....	85	P	
C		Pacific Coast Gas Assn.....	84
California Barrel Co., Ltd.....	2nd Cover	Pacific Gas & Electric Company.....	6
California-Western States Life Insurance Company.....	8	Pacific Telephone & Telegraph Co.....	82
Chicago Bridge & Iron Company.....	31	Packing Equipment Division,	
Clipper Belt Lacer Co.....	68	Food Machinery & Chemical Corporation.....	70
Cold Metal Products Co., The.....	3rd Cover	R	
Colorado Fuel & Iron Corporation,		Realock Fence Division,	
Realock Fence Division.....	85	Colorado Fuel & Iron Corporation.....	85
Coldwell, Banker & Company.....	82	Revere Copper & Brass, Inc.....	53
Crane Co.	7	Ridge Tool Company.....	79
Curtis Pneumatic Mach. Div. of Curtis Mfg. Co.....	10	Ross, J. O., Engineering Corp.....	80
F		Ryerson, Joseph T., & Son, Inc.....	32
Flexible Steel Lacing Co.....	84	S	
Food Machinery & Chemical Corporation,		Shepard Niles Crane & Hoist Corporation.....	73
Packing Equipment Division.....	70	Smoot-Holman Company	58
Fruehauf Trailer Company of Calif.....	4	Snap-On Tools Corporation.....	55
G		Stanley Works, The.....	30
Galland-Henning Mfg. Company.....	64	Stauffer Chemical Company.....	59
Globe Products Manufacturing Company.....	76	Stephens-Adamson Mfg. Co.....	4th Cover
Grinnell Company, Inc.....	24	Surety Rubber Company.....	81
I		T	
Independent Iron Works.....	71	Tide Water Associated Oil Co.....	16
J		Truesdail Laboratories, Inc.....	82
Johnson Steel and Wire Co., Inc.....	57	V	
Johnston, A. P., Company.....	90	Victor Equipment Company.....	77
Jorgensen, Earle M., Co.....	20	W	
K		Western Asbestos Company.....	76
Kaiser Steel Corporation.....	9	White, Motor Co.....	18
L		Y	
Link-Belt Co., The.....	3	Yuba Manufacturing Co.....	88
Lufkin Foundry & Machine Company.....	75		

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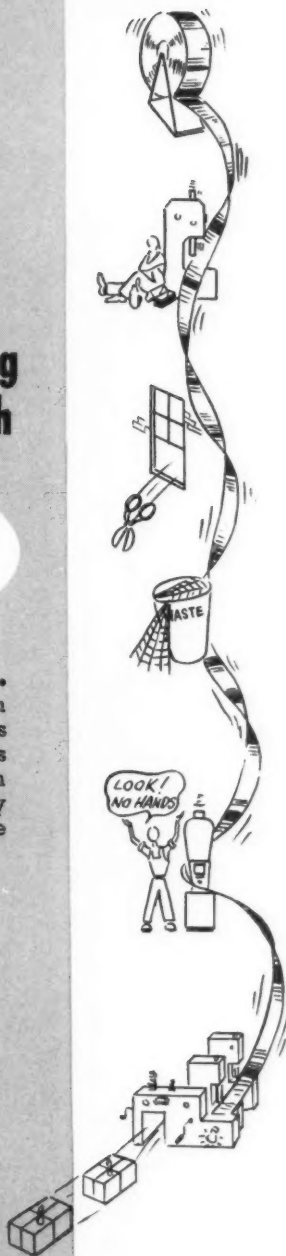
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fabricating
costs with**

CMP

THINSTEEL
TRADE MARK

in Coils

with a small investment, you can equip your fabricating machines with standard or self-built devices to "feed" THINSTEEL to them from coils, making their operation fully automatic and giving you these cost-cutting advantages:



FASTER PRODUCTION

Automatic feeds permit machine operation at top speeds.

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Machines do not tire; never have to stop for personal reasons.

NO EXTRA CUTTING COST

Thinsteel can be supplied to your exact fabricating width; fabricating machines then cut finished formed units apart.

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Trim scrap frequently left when blanking or drawing flat rolled steel can be eliminated or substantially reduced when employing Thinsteel coils.

OPERATORS HAVE TIME FOR OTHER WORK

Automatic-feed machines require little attention; operators have free time for other work.

COMBINED OPERATIONS

Often, machines can be grouped and synchronized so two or more presses or forming machines can be operated by one man, decreasing labor cost per ton of steel processed.

A qualified CMP representative will be pleased to study your operations and offer suggestions that will help you cut your fabricating costs.

Ask for the CMP Western Warehouse Stock List of Low Carbon, High Carbon Spring Steel, Stainless Thinsteel in L. A. Warehouse for Immediate Delivery.

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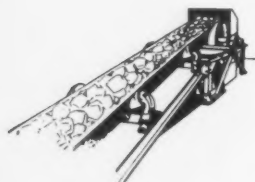
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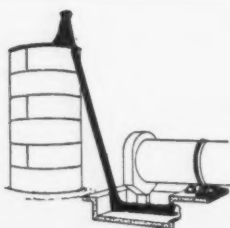
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SHUTTLE TYPE
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BELT CONVEYOR
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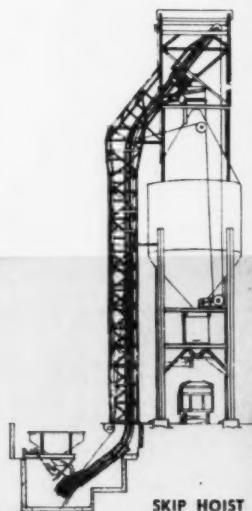
RUN AROUND
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Stephens-Adamson Has THE RIGHT COMBINATION of Conveyors for YOU



SKIP HOIST

Now is the time to review your bulk material handling methods to check such points as these:

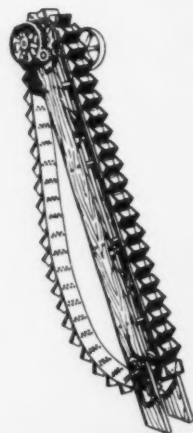
Are conveyors of right *capacity* for present volume? Right *type* for the bulk materials now handled? Properly *placed* to move, store and reclaim as needed? Does present system starve or flood processing equipment at any stage? Are the various units in condition to avoid frequent troublesome costly shutdowns?

If questions like these cannot be answered with a clear "yes," call in S-A engineers. Let them make a free survey and give you our recommendations.

There are three good reasons why S-A can help you save time, money and worry on your bulk material handling . . . first, S-A engineers have been solving conveyor problems for nearly 50 years, with a record of thousands of successful installations . . . second, S-A builds all types of conveyors and elevators—and you are assured the right conveyor for each job . . . third, you will find the entire S-A staff helpful and cooperative in every respect.

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